U.S. Air Force School of Aerospace Medicine

Bioenvironmental Engineering CFETP Journeyman Upgrade Training Project

Trainer's Guide

Developed for

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by

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Trainer's Guide for the Bioenvironmental Engineering CFETP Journeyman Upgrade Training Project

- 1. Purpose. The Trainer's Guide provides unit trainers with a roadmap and management tool to facilitate progression of Bioenvironmental Engineering Technicians through the OJT required for certification as a journeyman. It identifies minimum upgrade training requirements based on the proficiency-based Core Tasks listed in the 4BOX1 Career Field Education and Training Plan. The Trainer's Guide also provides the training objectives, training references, and sub-tasks, conditions, and standards associated with these Core Tasks. It parallels the Trainee Guide, which is used by students progressing through to journeyman certification.
- 2. Background. Bioenvironmental Engineering technician training requirements are found in the 4BOX1 Career Field Education and Training Plan (CFETP). The Bioenvironmental Engineering CFETP is a comprehensive core training document that identifies life-cycle education and training requirements, training support resources, and minimum Core Tasks for each skill level in the Bioenvironmental Engineering career field. These Core Tasks are listed in the Specialty Training Standard (STS) included in Part 2 of the CFETP. Core Tasks are defined as, "The minimum qualification requirements within an Air Force Specialty or duty position."

Upgrade to Journeyman level in the Bioenvironmental Engineering Specialty (AFSC 4BOX1) requires successful completion of upgrade training. Upgrade training to the 5-skill level begins after the mandated minimum 6 months duty position experience as an apprentice (3-level). Upgrade training consists of task and knowledge training provided in Career Development Course (CDC) 90750 and the Core Task requirements identified in the Specialty Training Standard (STS). The STS lists 216 Core Tasks requiring training for upgrade to the Journeyman level. Of these, training requirements for 132 performance-based tasks are listed in this guide.

3. Use of the Trainer's Guide. The Trainer's Guide is intended for use by the unit trainer responsible for the Bioenvironmental Engineering Technician upgrade training.

It is to be used in conjunction with the Trainee Guide and the Certifier's Guide. Each guide presents the journeyman level performance-based Core Tasks grouped into logical blocks and modules. Blocks and modules were designed to approximate the types of duties and activities Bioenvironmental Engineering personnel perform, then organized into logical training steps. The three basic training blocks are: Environmental Quality, Industrial Hygiene, and Contingency.

These training blocks are generally consistent with the layout and design of CDC 90750. The Environmental Quality and Industrial Hygiene Blocks contain basic tasks that are performed at the journeyman level. In most cases, these tasks are then applied to specific media in the advanced sections of these blocks. The Contingency Block contains tasks that journeymen perform during disaster, wartime, or other contingency operations.

The CDC focuses on subject knowledge while OJT focuses on task, or performance-based knowledge required for Journeyman level. You should ensure that the student completes the CDC and OJT training simultaneously. For example, as the student works through the Environmental Quality lessons of the CDC they should also accomplish the associated modules of the Trainee's Guide. With this approach, the student will first complete the subject knowledge requirements and then apply them to complete the task knowledge requirements.

In order to complete the Trainee Guide modules, students will need to complete related Qualification Training Packages (QTPs) or OJT. You, as the unit trainer, are responsible for providing this training to the student. You should also coordinate with the certifier to verify certification of the student's ability to accomplish the required Core Tasks. Certification is documented by the assigned Certifier as outlined in AFI 36-2201.

4. Organization of the Trainer's Guide. The Trainer's Guide contains three annexes which you will use to accomplish the training. The annexes list Core Tasks grouped by blocks and modules. The Upgrade Training Matrix (Annex A) provides an overview of how blocks and modules are organized. It presents the Core Task titles and numbers, with associated proficiency codes, STS task number cross references, Career Development Course (CDC) cross references, and available Qualification Training Package (QTP) cross references.

The Process Source Sheets (Annex B) present detailed information for each task which will assist you in conducting the training. Each sheet contains the same information provided in the Upgrade Training Matrix, as well as the task objective, conditions, standards, and proficiency level requirements which are integral to conducting the training on each Core Task. The sheet also provides sub-tasks for each task (including

identifying mandatory sub-tasks), prerequisite modules, trainer references, and space to include local requirements and trainer's notes for each task. It provides a step-by-step breakdown of minimum training requirements in tabular format for you to follow while conducting training. Finally, the sheet includes training and evaluation techniques particular to each performance-based Core Task. This is information for the trainer to assist in the preparation for training, including equipment needed, and any other special instructions.

The Trainee Guide provides similar information for the student as the Process Source Sheets. The students will be able to follow along to ensure they receive all the training required for upgrade to journeyman level. The sub-task listing is a critical component of the Guides. Sub-tasks describe the specific steps required to understand and/or perform each task to standard.

Standards were derived from the proficiency codes listed in the STS. Put simply, the complexity of performance-based tasks are denoted by Task Knowledge proficiency codes (small letters). The level of complexity of a task can be determined by the proficiency code's location in the alphabet. For example, a small "a" is less complex than a small "c". The following proficiency code key presents the proficiency code definitions as outlined in the AFSC 4BOX1 CFETP.

Proficiency Code Key

Task Knowledge Levels

- a Can name parts, tools, and simple facts about the task (Nomenclature).
- b Can determine step by step procedures for doing the task (Procedures).
- c Can identify why and when the task must be done and why each step is needed (Operating Principles).
- d Can predict, isolate, and resolve problems about the task (Advanced Theory).

The Core Task Tracking Sheet (Annex C) tracks an individual trainee's progress through upgrade training. You are responsible for ensuring the sheet is filled out as training is administered. The sheet is used for recording the student's test and/or retest scores for each Core Task. This sheet is also used by the certifier to verify the successful completion of training.

The Trainer's Guide was developed for use along with the Trainee Guide and Certifier's Guide. As stated before, the Trainee Guide provides information and references for students taking the upgrade training. The Certifier's Guide is a reference document for certifying officials.

5. Conclusion. The Trainer's Guide is one of a series of products designed to improve the journeyman upgrade training process. Career field-wide use of the Guides will standardize OJT, resulting in improved training and increased job performance for current and future Bioenvironmental Engineering Technicians. Together, the Guides ensure that Bioenvironmental Engineering personnel, their trainers, and their certifiers follow a standardized approach and clear path through journeyman upgrade training.

MODULE # TASK # TITLE	P_(:()) -	S CROSS CDC CROSS FERENCE REFERENCE	QTP CROSS REFERENCE
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Environmental Quality Block
Drinking Water Surveillance Module

EQ1	1	Perform chlorine analysis	b	14.f.(1)(a)	90750 Vol.1, Sect.038	TBD
EQ1	2	Perform pH determination	b	14.f.(1)(c)	90750 Vol.1, Sect.038	TBD
EQ1	3	Interpret results of field tests	b	14.f.(1)(d)	N/A	TBD
EQ1	4	Determine frequency and number of samples	b	14.f.(2)(a)	90750 Vol.1, Sect.031	TBD
EQ1	5	Identify sampling locations	b	14.f.(2)(b)	90750 Vol.1, Sect.031	TBD
EQ1	6	Select and prepare sampling containers	b	14.f.(2)(c)	90750 Vol.1, Sect.032	TBD
EQ1	7	Collect potable water samples for bacteriological analysis	b	14.f.(2)(d)	90750 Vol.1, Sect.032	TBD
EQ1	8	Transport or ship bacteriological samples to laboratory	b	14.f.(2)(e)	N/A	TBD
EQ1	9	Membrane filter technique	b	14.f.(2)(g)1.	90750 Vol.1, Sect.033	TBD
EQ1	10	MMO-MUG	b	14.f.(2)(g)4.	N/A	TBD
EQ1	11	Interpret bacteriological analysis results	b	14.f.(2)(h)	90750 Vol.1, Sect.033,035	TBD
EQ1	12	Document results	b	14.f.(2)(j)	90750 Vol.1, Sect.036	TBD
EQ1	13	Collect and preserve water samples for analysis	b	14.f.(3)(d)	90750 Vol.1, Sect.040	TBD
EQ1	14	Transport or ship drinking water samples	b	14.f.(3)(g)	90750 Vol.1, Sect.040	TBD
EQ1	15	Interpret results of chemical, physical, and radiological water analysis	b	14.f.(3)(i)	90750 Vol.1, Sect.041	TBD

MODULE #	TASK #	TITLE	P-CODE	STS CROSS	CDC CROSS	QTP CROSS
WIODOLL II	17(01(#		1 OODL	REFERENCE	REFERENCE	REFERENCE
EQ1	16	Document results of chemical, physical, and radiological water analysis	b	14.f.(3)(j)	N/A	TBD
Environmental Qu Wastewater Surve		ule				
EQ2	1	Review waste disposal procedures in industrial case file	b	16.c.(2)(b)	90750 Vol.1, Sect.051	TBD
EQ2	2	Determine sampling methodology	b	16.c.(3)(a)	90750 Vol.1, Sect.052	TBD
EQ2	3	Identify locations and determine frequency	b	16.c.(3)(b)	90750 Vol.1, Sect.052	TBD
EQ2	4	Select and prepare sample containers	b	16.c.(3)(c)	90750 Vol.1, Sect.052	TBD
EQ2	5	Interpret results of sampling	b	16.c.(3)(g)	90750 Vol.1, Sect.052	TBD
Environmental Qu Hazardous Waste		e Module				
EQ3	1	Compile and maintain hazardous waste characterization and waste stream inventory	b	17.d.(1)	N/A	TBD
EQ3	2	Review workplace and industrial processes and practices	b	17.d.(3)	N/A	TBD
EQ3	3	Review disposal procedures	b	17.d.(2)	N/A	TBD
EQ3	4	Perform bulk sample collection	b	17.e. ,	90750 Vol.1, Sect.058	TBD
EQ3	5	Interpret results of hazardous waste sampling	b	17.h.	N/A	TBD

Industrial Hygiene Block

MODULE #	TASK#	TITLE	P-CODE	STS CROSS REFERENCE	CDC CROSS REFERENCE	QTP CROSS REFERENCE
Industrial Hygiene Regulatory Resea						
IH1	1	Identify appropriate CFR used for identification,	b	20.b.(1)	90750 Vol.1,	TBD
IH1	2	recognition, and control of specific health hazards Identify appropriate AFOSH STD used for identification, recognition, and control of specific health hazards	b	20.c.(1)	Sect.002 90750 Vol.1, Sect.003	TBD
Industrial Hygiene Conducting Techr		ı Module				
IH2	1	Conduct specialized training on occupational and environmental hazards	b	8.b.(1)	N/A	TBD
IH2	2	Conduct in-service or other training	b	8.b.(2)	N/A	TBD
Industrial Hygiene Workplace Surveil		le				
IH3	1	Survey scope	b	20.d.(1)	90750 Vol.2, Sect.205, 207	TBD
IH3	2	Survey frequency	b	20.d.(2)	90750 Vol.2, Sect.205, 206	TBD
IH3	3	Interview shop personnel	b	20.d.(3)	90750 Vol.2, Sect.206	TBD
IH3	4	Task/process description	b	20.d.(4)	90750 Vol.2, Sect.207	TBD
IH3	5	Document workplace surveys or visits	b	20.h.(1)	90750 Vol.2, Sect.207	TBD

MODULE#	TASK#	TITLE	P-CODE	STS CROSS REFERENCE	CDC CROSS REFERENCE	QTP CROSS REFERENCE
Industrial Hygiene						
Hazardous Mater	ials Manage	ment Module				
IH4	1	Research MSDS	b	20.e.(1)(a)3.	N/A	TBD
IH4	2	Review Hazardous Material reports	b	20.e.(1)(a)1.	90750 Vol.2, Sect.222	TBD
Industrial Hygiene Biohazards Modu						
Bioriazarus iviouu						
IH5	1	Evaluate biological exposure	b	20.g.(2)	90750 Vol.2, Sect.207	TBD
IH5	2	Work practices	b	20.g.(3)(b)1.	N/A	TBD
IH5	3	Enclosures	b	20.g.(3)(a)2.	N/A	TBD
IH5	4	Select proper PPE	b	20.g.(3)(b)3.	90750 Vol.2, Sect.214	TBD

MODULE #	TASK #	TITLE	P-CODE	STS CROSS REFERENCE	CDC CROSS REFERENCE	QTP CROSS REFERENCE
Industrial Hygiene Noise Module	e Block					
IH6	1	Calibrate sound level meters	b	20.f.(2)(d)1.b.	90750 Vol.3, Sect.418	TBD
IH6	2	Perform a sound level survey	b	20.f.(2)(d)1.c.	90750 Vol.3, Sect.418	TBD
IH6	3	Calibrate and use dosimeter	b	20.f.(2)(d)3.c.	90750 Vol.3, Sect.419	TBD
IH6	4	Calculate PEL for noise	b	20.f.(2)(d)1.e.	N/A	TBD
IH6	5	Calculate C ₁ /T ₁ and predict worker exposure	b	20.f.(2)(d)1.d.	N/A	TBD
IH6	6	Determine attenuation factors/noise reduction rating factors	b	20.f.(2)(e)3.a.	90750 Vol.3, Sect.420	TBD
IH6	7	Select and inspect proper protectors	b	20.f.(2)(e)3.b.	90750 Vol.3, Sect.420	TBD
Industrial Hygiene Thermal Stress M						
IH7	1	Perform wet bulb globe thermometer (WBGT) survey	b	20.f.(1)(b)2.	90750 Vol.3, Sect.412	TBD
IH7	2	Calculate TWA WBGT	b	20.f.(1)(b)3.	90750 Vol.3, Sect.412	TBD
IH7	3	Perform other temperature and humidity surveys	b	20.f.(1)(b)4.	N/A	TBD

MODULE#	TASK#	TITLE	P-CODE	STS CROSS REFERENCE	CDC CROSS REFERENCE	QTP CROSS REFERENCE
Industrial Hygiene Ionizing Radiation						
IH8	1	Survey radioactive material use and/or storage areas	b	25.e.(7)	90750 Vol.4, Sect.611	TBD
IH8	2	Investigate abnormal exposures, overexposures, or other incidents involving ionizing radiation	b	25.c.(5)	90750 Vol.4, Sect.610	TBD
IH8	3	Enroll personnel on TLD program	С	25.d.(1)	90750 Vol.4, Sect.609	TBD
IH8	4	Issue, collect, or exchange TLDs	b	25.d.(2)	90750 Vol.4, Sect.609	TBD
IH8	5	Ship or store TLDs	b	25.d.(3)	90750 Vol.4, Sect.609	TBD
Industrial Hygiene Radiofrequency R	adiation Mod					
IH9	1	Inventory sources	b	20.f.(4)(c)3.	90750 Vol.4, Sect.618	TBD
IH9	2	Perform site presurveys	b	20.f.(4)(c)4.	90750 Vol.4, Sect.618	TBD
IH9	3	Calculate hazard distances	b	20.f.(4)(c)7.	90750 Vol.4, Sect.618	TBD
IH9	4	Select proper measurement equipment	b	20.f.(4)(c)9.	90750 Vol.4, Sect.619	TBD
IH9	5	Calculate probe burnout	b	20.f.(4)(c)10.	90750 Vol.4, Sect.619	TBD
IH9	6	Ground based emitters	b	20.f.(4)(c)11.a.	N/A	TBD
IH9	7	Airborne Radiofrequency (RF) emitters	b	20.f.(4)(c)11.b.	N/A	TBD

MODULE#	TASK#	TITLE	P-CODE	STS CROSS REFERENCE	CDC CROSS REFERENCE	QTP CROSS REFERENCE
IH9	8	Interview personnel	b	20.f.(4)(c)13.a.	90750 Vol.4,	TBD
IH9	9	Calculate exposure times	b	20.f.(4)(c)13.b.	Sect.619 90750 Vol.4, Sect.619	TBD
IH9	10	Calculate compliance factors	b	20.f.(4)(c)13.c.	90750 Vol.4, Sect.619	TBD
IH9	11	Reconstruct incident	b	20.f.(4)(c)13.d.	90750 Vol.4, Sect.619	TBD
IH9	12	Recommend corrective actions	b	20.f.(4)(c)13.e.	90750 Vol.4, Sect.619	TBD
IH9	13	Evaluate safe work practices	b	20.f.(4)(c)12.	90750 Vol.4, Sect.618	TBD
Industrial Hygiene Confined Space N						
IH10	1	Oxygen deficient/enriched	b	22.d.(2)	N/A	TBD
IH10 IH10	2 3	Determine LEL Determine UEL	b b	22.d.(1)(a) 22.d.(1)(b)	N/A N/A	TBD TBD
IH10	4	PPE selection	b	22.e.(2)	N/A	TBD
Industrial Hygiene Chemical Exposu		nce Module				
IH11	1	Evaluate work practices	b	20.e.(2)(b)1.	90750 Vol.2, Sect.206	TBD
IH11	2	Identify chemical composition	b	20.e.(1)(d)1.	90750 Vol.2, Sect.207	TBD
IH11	3	Verify chemical usage	b	20.e.(1)(a)2.	90750 Vol.2, Sect.222	TBD

MODULE #	TASK#	TITLE	P-CODE	STS CROSS REFERENCE	CDC CROSS REFERENCE	QTP CROSS REFERENCE
IH11	4	Determine potential exposure routes	b	20.e.(1)(d)2.	90750 Vol.2, Sect.207	TBD
IH11	5	Estimate potential health risks	b	20.e.(1)(d)3.	90750 Vol.2, Sect.207	TBD
IH11	6	Collect bulk chemical samples	b	20.e.(1)(b)	90750 Vol.2, Sect.237	TBD
IH11	7	Calculate 8 hour time weighted average (TWA)	b	20.e.(2)(a)9.	90750 Vol.2, Sect.242	TBD
IH11	8	Interpret 8 hour time weighted exposures	b	20.e.(2)(a)12.a.	90750 Vol.2, Sect.243	TBD
IH11	9	Interpret short term exposure limit (STEL) values	b	20.e.(2)(a)12.b.	90750 Vol.2, Sect.243	TBD
IH11	10	Interpret ceiling limits	b	20.e.(2)(a)12.c.	90750 Vol.2, Sect.243	TBD
Industrial Hygiene Air Surveillance M						
IH12	1	Develop a sampling strategy	а	20.e.(2)(a)2.	90750 Vol.2, Sect.229, 235, 236	TBD
IH12	2	Collection method	b	20.e.(2)(a)3.a.	90750 Vol.2, Sect.237	TBD
IH12	3	Sampling rates/volumes	b	20.e.(2)(a)3.b.	90750 Vol.2, Sect.237	TBD
IH12	4	Calibrate air sampling pumps	b	20.e.(2)(a)4.a.	90750 Vol.2, Sect.229, 238	TBD
IH12	5	Collect area air samples	b	20.e.(2)(a)5.	90750 Vol.2, Sect.229, 235	TBD
IH12	6	Collect breathing zone samples	b	20.e.(2)(a)6.	90750 Vol.2, Sect.229, 235-240	TBD

MODULE #	TASK #	TITLE	P-CODE	STS CROSS REFERENCE	CDC CROSS REFERENCE	QTP CROSS REFERENCE
Industrial Hygiene Ventilation Module						
IH13	1	Calculate dilution ventilation requirements	b	20.e.(3)(a)2.c.	90750 Vol.3, Sect.405	TBD
IH13	2	Perform dilution ventilation surveys	b	20.e.(3)(a)2.e.	90750 Vol.3, Sect.405	TBD
IH13	3	Perform initial, baseline, and routine industrial ventilation surveys using the face velocity method	b	20.e.(3)(a)3.d.	90750 Vol.3, Sect.409	TBD
IH13	4	Perform routine static pressure check	b	20.e.(3)(a)3.g.	90750 Vol.3, Sect.400, 410	TBD
Industrial Hygiene Control Measures						
IH14	1	Evaluate use and availability of emergency equipment	b	20.e.(2)(b)3.	90750 Vol.2, Sect.213-214, 218- 219	TBD
IH14	2	Initiate and complete AF Form 2758	b	20.f.(2)(e)3.c.	N/A	TBD

		OF GRADE TRAINING				
MODULE#	TASK#	TITLE	P-CODE	STS CROSS REFERENCE	CDC CROSS REFERENCE	QTP CROSS REFERENCE
Industrial Hygiend Using Personal P		uipment Module				
IH15	1	Advise shop supervisors on ordering respiratory protection devices	b	20.e.(3)(b)1.e.	N/A	TBD
IH15	2	Select appropriate eye protection	b	20.e.(3)(b)2.a.	90750 Vol.2, Sect.217	TBD
IH15	3	Select appropriate skin protection	b	20.e.(3)(b)2.b.	90750 Vol.2, Sect.218	TBD
IH15	4	Recommend proper use, care, and maintenance of respirators	b	20.e.(3)(b)1.c.	N/A	TBD
IH15	5	Evaluate adequacy, use, and maintenance of PPE	b	20.e.(2)(b)2.	90750 Vol.2, Sect.213	TBD
Industrial Hygiene Advanced Topics		Protective Equipment Module				
IH16	1	Conduct required initial/periodic training	b	20.e.(3)(b)1.i.	90750 Vol.2, Sect.213, 215	TBD
IH16	2	Perform selection of respiratory protective devices for personnel	b	20.e.(3)(b)1.f.	90750 Vol.2, Sect.213-215	TBD
IH16	3	Qualitative fit test	b	20.e.(3)(b)1.g.1.	90750 Vol.2, Sect.213-214	TBD

MODULE #	TASK#	TITLE	P-CODE	STS CROSS REFERENCE	CDC CROSS REFERENCE	QTP CROSS REFERENCE
Contingency Block Hazardous Waste		ions Module				
C1 C1	1 2	Hazardous waste site operation Decontamination at hazardous waste sites	b b	17.o. 17.n.	N/A N/A	TBD TBD
Contingency Block Spill Prevention ar		e Module				
C2	1	Identify and brief field officials on possible health hazards	b	28.e.(4)	90750 Vol.5, Sect.818	TBD
C2	2	Recommend personal protective equipment	b	28.e.(7)	90750 Vol.5, Sect.818	TBD
Contingency Block Potable Water Mo						
C3	1	Monitor chlorine and bacteriological quality	b	28.f.(2)	90750 Vol.1, Sect.038	TBD
C3	2	Maintain and use the field bacteriological water test kit	b	28.f.(1)	90750 Vol.1, Sect.033	TBD
C3	3	Calculate chlorination requirements	b	28.f.(3)	90750 Vol.1, Sect.029	TBD
C3	4	NBC decontamination and treatment techniques	b	28.f.(11)	90750 Vol.5, Sect.815	TBD

MODULE#	TASK#	TITLE	P-CODE	STS CROSS REFERENCE	CDC CROSS REFERENCE	QTP CROSS REFERENCE
Contingency Block NARP Module						
C4	1	Identify possible health hazards	b	28.d.(4)(b)	90750 Vol.5, Sect.809	TBD
C4	2	Operationally check, maintain, and use Broken Arrow response equipment other than radiac	b	28.d.(4)(a)	90750 Vol.5, Sect.810	TBD
C4	3	Use and maintain radiac equipment	b	28.d.(4)(g)	90750 Vol.5, Sect.809	TBD
C4	4	Calculate airborne contamination	b	28.d.(4)(e)1.	90750 Vol.5, Sect.810	TBD
C4	5	Interpret airborne sampling results	b	28.d.(4)(c)1.	90750 Vol.5, Sect.810	TBD
C4	6	Interpret surface contamination results	а	28.d.(4)(c)2.	90750 Vol.5, Sect.809	TBD
C4	7	Recommend personal protective equipment	b	28.d.(4)(c)3.	90750 Vol.5, Sect.809-810	TBD
Contingency Block NBC Module						
C5	1	Determine dose rates	b	28.h.(1)(d)	90750 Vol.5, Sect.806	TBD
C5	2	Calculate dosages	b	28.h.(1)(e)	90750 Vol.5, Sect.806	TBD
C5	3	Determine stay times	b	28.h.(1)(f)	90750 Vol.5, Sect.806	TBD
C5	4	Determine and apply protection factors	b	28.h.(1)(h)	90750 Vol.5, Sect.807	TBD
C5	5	Monitor personnel	b	28.h.(1)(i)	90750 Vol.5, Sect.807	TBD

MODULE #	TASK #	TITLE	P-CODE	STS CROSS REFERENCE	CDC CROSS REFERENCE	QTP CROSS REFERENCE
C5	6	Detect and identify chemical agents	С	28.h.(3)(c)	90750 Vol.5, Sect.814	TBD
C5	7	Predict arrival and duration of chemical hazard	b	28.h.(3)(e)	N/A	TBD
C5	8	Maintain and use the M256 kit	b	28.h.(3)(i)	90750 Vol.5, Sect.814	TBD
C5	9	Maintain and use the M272 kit	b	28.h.(3)(j)	90750 Vol.5, Sect.814	TBD
C5	10	Maintain and use M9 tape	а	28.h.(3)(k)	90750 Vol.5, Sect.814	TBD
C5	11	Maintain and use M8 paper	а	28.h.(3)(I)	90750 Vol.5, Sect.814	TBD
C5	12	Plot chemical hazard areas	а	28.h.(3)(f)	N/A	TBD
C5	13	Maintain and use the NBC marking kit	b	28.h.(3)(n)	N/A	TBD
C5	14	Maintain and use the ground crew ensemble	С	28.h.(3)(m)	90750 Vol.5, Sect.813	TBD

ENVIRONMENTAL QUALITY BLOCK

The Environmental Quality Block consists of the following Qualification Training Package (QTP) Modules:

Number	Module Title	Page
EQ1	Drinking Water Surveillance Module	EQ2
EQ2	Wastewater Surveillance Module	EQ43
EQ3	Hazardous Waste Surveillance Module	EQ54

DRINKING WATER SURVEILLANCE MODULE

The Drinking Water Surveillance Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title
14.f.(1)(a)	Perform chlorine analysis
14.f.(1)(c)	Perform pH determination
14.f.(1)(d)	Interpret results of field tests
14.f.(2)(a)	Determine frequency and number of samples
14.f.(2)(b)	Identify sampling locations
14.f.(2)(c)	Select and prepare sampling containers
14.f.(2)(d)	Collect potable water samples for bacteriological analysis
14.f.(2)(e)	Transport or ship bacteriological samples to laboratory
14.f.(2)(g)1.	Membrane filter technique
14.f.(2)(g)4.	MMO-MUG
14.f.(2)(h)	Interpret bacteriological analysis results
14.f.(2)(j)	Document results
14.f.(3)(d)	Collect and preserve water samples for analysis
14.f.(3)(g)	Transport or ship drinking water samples
14.f.(3)(i)	Interpret results of chemical, physical, and radiological water analysis
14.f.(3)(j)	Document results of chemical, physical, and radiological water analysis

PROCESS SOURCE SHEET # EQ 1-1

BLOCK TITLE Environmental Quality MODULE TITLE Drinking Water Surveillance

TASK OBJECTIVE: Conduct water testing for chlorine residuals using DPD colorimetric method

CONDITIONS: Given a sample of drinking water

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

14.f.(1)(a) Perform chlorine analysis 2. Classify the different chlorine forms in water* 2.1 Define the following terms: Free Available Chlorine Residual, Total Combined Chlorine, and Total Residual Chlorine 3. Describe the DPD Colorimetric analysis method* 3.1 Define the principle behind colorimetric testing 4. Select sampling locations for chlorine 5. Collect sample 6. Conduct chlorine analysis using the DPD Colorimetric Method as presented in Standard Methods 6.1 Calibrate photometric equipment with chlorine or potassium permanganate solutions 6.2 Place 0.5 mL each of buffer reagent and DPD indicator reagent in a test tube or photometer cell 6.3 Add 10 mL sample and mix 6.4 Read color immediately (Reading A) 6.5 Add one small crystal of KI and mix 6.6 Read color immediately (Reading B) 6.7 Add several more crystals of KI and mix to dissolve 6.8 Read color after two minutes (Reading C)	STS TASK #	<u> </u>	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
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14.f.(1)(a) Perform chlorine analysis b 6.9 Place small crystal of KI in a clean test tube or photometer cell 6.10 Add 10 mL sample and mix	3-TASK
6.9 Place small crystal of KI in a clean test tube or photometer cell	
tube or photometer cell	
6.10 Add 10 mL sample and mix	
6.11 Add 0.5 mL buffer reagent and 0.5 DPD	
Indicator reagents to new test tube and mix	
6.12 Add first test tube to the second and	
mix	
6.13 Read color immediately (Reading N)	
6.14 Add 0.5 mL Thioacetamide solution to	
100mL sample	
6.15 Mix and add buffer and DPD reagents	
6.16 Read color immediately	
6.17 Add several KI crystals and mix to	
dissolve	
6.18 Let stand about two minutes and read	
colors	
6.19 Conduct calculations using the table in	
Standard Methods	Υ
7. Define the principle behind colorimetric testing	
using the DPD field test kit*	
7.1 List the DPD test kit contents, including	
chlorine color comparators and four	
reagent tablets	Υ
8. Conduct chlorine analysis using the DPD field	
test kit* 8.1 Determine which tests to make and	
select the corresponding reagent tablet	
8.2 Rinse test cell and fill to graduated line	
8.3 Add one #1 tablet to test cell and insert	
stopper	
8.4 Mix until tablet dissolves	
8.5 Insert cell into comparator and match	
closest color	
8.6 Report results of FAC	
8.7 Add one #2 tablet to test cell and insert	
stopper	
8.8 Mix until tablet dissolves	
8.9 Insert cell into comparator and match	
closest color	
8.10 Report results of Monochloramine	
8.11 Add one #3 tablet to test cell and insert	
stopper	
8.12 Mix until tablet dissolves	
8.13 Insert cell into comparator and match closest color	
8.14 Report results of Dichloramine	
8.15 Rinse new test cell and fill to graduated	
line	
8.16 Add one #4 tablet to test cell and insert	
stopper	
8.17 Mix until tablet dissolves	

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
14.f.(1)(a)	Perform chlorine analysis	b	
	8.18 Insert cell into comparator and match		
	closest color		Υ
	8.19 Report results of TRC		
	9. Calculate residual chlorine forms*		
	9.1 Calculate TCC (TCC=TRC-FAC)		
	9.2 If necessary, transport and ship		
	samples for analysis		
	9.3 Attach DD1502-1 to cooler		
	9.4 Complete DD1149		
	9.5 Interpret and record results of chemical analyses		
	9.6 Write staff studies, surveys, or special reports as necessary to record results		
	9.7 Forward copy to environmental coordinator		
	9.8 File documentation in appropriate file		Υ
	10. Interpret and record results of chlorine		
	analyses*		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol. 1, Sect. 038

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: DPD kit, log book, transport forms

ADDITIONAL SUPPORTING MATERIALS: Photometric equipment, potassium permanganate, test tubes for standard methods procedures.

SPECIFIC TECHNIQUES: Conduct training and evaluation for an actual drinking water sample.

TRAINER REFERENCES:

AFI 44-103 9.2.4, 9.5 40 CFR 141.74(a)(5)

Standard Methods for the Examination of Water and Wastewater, 18th Edition 1992, Section 4500-Cl.

NOTES:			
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PROCESS SOURCE SHEET # EQ 1-2

BLOCK TITLE Environmental Quality MODULE TITLE Drinking Water Surveillance

TASK OBJECTIVE: Conduct water testing for pH level

CONDITIONS: Given a sample of drinking water

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
14.f.(1)(c)	Perform pH determination	b	
14.1.(1)(0)	 Describe the electrometric analysis method for pH Define the principles behind pH determination using electrometric analysis Describe the colorimetric method for pH Define the principles behind pH determination using Colorimetric analysis Recognize the limitations of this method Select sampling locations Collect samples for analysis Conduct pH analysis using the eletrometric method as described in Standard Methods** Use polyethylene or TFE beakers Prepare equipment for analysis Calibrate pH meter and prepare electrodes following manufacturers instructions Clean electrodes Remove electrodes with distilled water Sample electrodes dry Prepare buffer solution using tables in Standard Methods Place electrodes in first buffer solution Set meter at the isopotential point following manufacturer's instructions Select second buffer within 2 pH units 		

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
14.f.(1)(c)	Perform pH determination	b	
	of the sample pH and bring sample and		
	buffer to the same temperature		
	5.8 Clean electrodes		
	5.9 Insert electrodes in second buffer		
	solution		
	5.10 Record measurement temperature and		
	adjust temperature dial on the meter to		
	indicate pH value of the buffer at test		
	temperature		
	5.11 Remove electrodes from buffer solution		
	and clean		
	5.12 Immerse electrodes in third buffer		
	solution which is below pH 10,		
	approximately 3 pH units different from the second buffer		
	5.13 Read the meter within 0.1 pH unit		
	5.14 If the meter reading is greater than 0.1		
	unit off the expected pH, troubleshoot		
	the meter following Standard Methods		
	5.15 Establish equilibrium between the two		
	electrodes and the sample by stirring		
	the sample gently		
	5.16 Condition electrodes after cleaning by		
	dipping them into sample for 1 min (for		
	diluted samples, immerse in 3 or 4		
	successive portions of the sample)		
	5.17 Blot dry, immerse in a fresh portion of		
	the sample		
	5.18 Read pH		
	6. List the procedures to conduct pH analysis		
	using the colorimetric test kit**		
	6.1 Select color comparator		
	6.2 Rinse test cell and fill to graduated line		
	6.3 Add one phenol red pH tablet (or liquid		
	drops) and insert stopper		
	6.4 Mix until tablet dissolves6.5 Insert cell into comparator and match		Y
	closest color		Ī
	6.6 Interpret and record results of pH*		
	6.7 If the pH is below 6.8 or above 8.2, use		Υ
	· · · · · · · · · · · · · · · · · · ·		
	The state of the s		
	the eletrometric method to measure pH 7. Interpret and record results of pH analyses*		'

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol. 1, Sect. 038
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Colorimetric test kit, log book
ADDITIONAL SUPPORTING MATERIALS: Beakers, pH meter for standard methods procedure.
SPECIFIC TECHNIQUES: Conduct training and evaluation for an actual drinking water sample.
TRAINER REFERENCES:
AFI 44-103 9.2.4, 9.5 40 CFR 141.74(a)(7) Standard Methods for the Examination of Water and Wastewater, 18th Edition 1992, Section 4500 H+.
NOTES:

PROCESS SOURCE SHEET # EQ 1-3

BLOCK TITLE Environmental Quality MODULE TITLE Drinking Water Surveillance

TASK OBJECTIVE: Determine the results of field tests

CONDITIONS: Given the levels of chlorine, fluoride, and pH in a water sample

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
14.f.(1)(d)	Interpret results of field tests	b	
	Based on the results, compare values to the desired/expected result* Record results of analyses for each sample on appropriate documentation Write staff studies, surveys, or special reports as necessary Forward copy to appropriate organization Sile documentation in appropriate file		Y

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: N/A

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Water sample levels, appropriate documentation/forms

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: NONE

TRAINER REFERENCES:

AFI 48-119, 9.6.3.4 40 CFR 141.74 (a)

NOTES:			

PROCESS SOURCE SHEET # EQ 1-4

BLOCK TITLE Environmental Quality

MODULE TITLE Drinking Water Surveillance

TASK OBJECTIVE: Identify the frequency and number of samples

CONDITIONS: Given a requirement to sample drinking water for bacteriological analysis, for a stated population

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
		CODE	SUB-TASK
14.f.(2)(a)	Determine frequency and number of samples	b	
	Define the population served		
	2. Determine the required number of samples for		
	an Air Force installation and any Air Force		
	remote sites*		Υ
	3. Identify Air Force, state, or local sampling		
	frequency requirements*		Υ
	4. Recognize repeat sampling requirements for		
	positive total coliforms		
	Recognize reduced sampling requirements		
	based on sanitary survey results		

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE CDC REFERENCE: 90750 Vol. 1, Sect. 031 QTP REFERENCE: TBD TRAINING AND EVALUATION TECHNIQUES: EQUIPMENT: Armstrong Lab Sampling Guide ADDITIONAL SUPPORTING MATERIALS: NONE SPECIFIC TECHNIQUES: NONE TRAINER REFERENCES: AFI 48-119, 9.6.3 40 CFR 141.21 (a) 40 CFR 141.23(k)(3) 54 CFR 27547 56 FR 101556 NOTES:

PROCESS SOURCE SHEET # EQ 1-5

BLOCK TITLE Environmental Quality

MODULE TITLE Drinking Water Surveillance

TASK OBJECTIVE: Identify the locations of sampling points

CONDITIONS: Given a requirement to sample drinking water for bacteriological analysis for a stated population, frequency and number of sample requirements

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
14.f.(2)(b)	Identify sampling locations	b	
	 Identify the source of the sampling: potable water, raw water supply, surface waters, ground water* Select sampling locations representative of the source* Follow guidelines for each of the water sources given in Standard Methods Maintain map of water distribution system showing sampling points 		Y Y

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:

PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol. 1, Sect. 031
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Water distribution system map.
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Conduct training and evaluation using a base scenario.
TRAINER REFERENCES:
AFI 32-7006 AFI 44-103 AFI 48-119 AFI 161-44 40 CFR 141.21(a)(1) 54 CFR 27547 56 FR 101556 Standard Methods for the Examination of Water and Wastewater, 18th Edition 1992, Section 9060A.
NOTES:

PROCESS SOURCE SHEET # EQ 1-6

BLOCK TITLE Environmental Quality MODULE TITLE
Drinking Water Surveillance

TASK OBJECTIVE: Select and prepare proper sampling containers

CONDITIONS: Given a requirement to sample drinking water for bacteriological analysis for a stated population

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

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STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
14.f.(2)(c)	Select and prepare sampling containers	b	
	Identify sampling container alternatives		
	Select laboratory certified containers		
	Prepare sampling containers		
	3.1 Before each use, examine glassware and		
	discard items with chipped edges or		
	etched inner surfaces		
	3.2 Clean and rinse bottles with distilled water		
	and detergent		
	3.3. Conduct final rinse with distilled water		
	three		
	times		
	3.4. Use utensils and containers made of		
	borosilicate glass, stainless steel, aluminum, or other corrosion resistant		
	material		
	3.5. Dechlorinate sampling containers to		
	prevent continuation of bacteriological		
	actions during transit using 10% sodium		
	thiosulfate solution		
	3.5.1 Dissolve 5 g sodium thiosulfate in		
	25 mL		
	distilled water		
	3.5.2 Add distilled water to bring amount		
	to 50		
	mL		
	3.5.3 Mix, then transfer solution to a		
	bottle to		
	store in the refrigerator		
	3.5.4 Mark the bottle with date, name		
	and		
	time of preparation		
	4. Sterilize bottles for at least 60 min at 170C in a		
	sterilizing oven or 30min at 121C in an		

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
14.f.(2)(c)	Select and prepare sampling containers	b	
	autoclave		

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol. 1, Sect. 032
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Typical sample containers, dechlorination solution
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Conduct training and evaluation using a scenario.
TRAINER REFERENCES:
Armstrong Lab Sampling Guide Standard Methods for the Examination of Water and Wastewater, 18th Edition 1992, Section 9030, 9040.
NOTES:

EQ-17

BLOCK TITLE Environmental Quality MODULE TITLE Drinking Water Surveillance

TASK OBJECTIVE: Collect drinking water samples

CONDITIONS: Given a requirement to sample drinking water for bacteriological analysis, and a number of samples, sampling locations, and sampling containers

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
14.f.(2)(d)	Collect potable water samples for	b	
	bacteriological analysis		
	Use aseptic techniques to avoid contamination		
	2. Keep sampling bottle closed until it is to be used		
	3. Collect samples that are representative of the		
	water tested		
	4. Collect sample in an area free of excessive dust, rain, snow, or other sources of		
	contamination		
	5. Collect samples following the techniques for		
	each of the water sources given in Standard		Υ
	Methods and/or the AL Sampling Guide*		
	5.1 Disinfect sample ports		
	5.2 Flush cold water faucet for at least 2-3		
	min		
	5.3 Adjust flow so it does not splash		
	5.4 Test pH level of the water		
	5.5 Determine free available chlorine level		
	of the water (and further tests as required)		
	5.6 Collect sample		
	5.6.1 Remove stopper and cap together		
	and do not contaminate		
	5.6.2 Fill container without rinsing,		
	replace stopper or cap immediately		
	and secure		
	5.6.3 Leave at least 2.5 cm air space in		
	the bottle (1 in)		
	6. Record collection point, date, time, FAC, and		
	pH on appropriate form/log		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol. 1, Sect. 032
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Sample container, chlorine and pH test kits, log book
ADDITIONAL SUPPORTING MATERIALS: Sample collection point
SPECIFIC TECHNIQUES: Conduct training and evaluation using an actual situation.
TRAINER REFERENCES:
AFI 44-103 AFI 48-119, 9.6.3 Armstrong Laboratory Sampling Guide 40 CFR 141
Standard Methods for the Examination of Water and Wastewater, 18th Edition 1992, Section 9060 A.
NOTES:

BLOCK TITLE Environmental Quality

MODULE TITLE Drinking Water Surveillance

TASK OBJECTIVE: Identify the steps to take when transporting the sample to the lab for analysis

CONDITIONS: Given a water sample which is to be tested for total coliform

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
14.f.(2)(e)	Transport or ship bacteriological samples to laboratory	b	
	 Coordinate sampling analyses with sampling laboratory if appropriate Identify the transportation/storage holding times for samples collected according to AL Sampling Guide and state or local guidance Prepare samples for transportation according to appropriate guidance Prepare all appropriate documentation required for transport to lab Identify proper sample chain-of-custody requirements Ship samples 		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task.

PREREQUISITES: NONE

CDC REFERENCE: N/A

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Water sample analyzed for total coliform, AL Sampling Guide, shipping materials, chain-of-custody documentation

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Verify students prepare samples properly for shipment

TRAINER REFERENCES:

AL Sampling Guide AFI 48-119 AFI 44-103 40 CFR 141 Standard Methods, Section 9060 B

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NOTES:			

BLOCK TITLE Environmental Quality MODULE TITLE Drinking Water Surveillance

TASK OBJECTIVE: Conduct analysis of samples using the membrane filter technique

CONDITIONS: Given a requirement to test drinking water for total coliform bacteria

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK # STS TASK/SUB-TASK TITLE 14.f.(2)(g)1. Membrane filter technique	PROF. CODE	MANDATORY SUB-TASK
		SUB-TASK
	b	
1 Identify leberatery actaty magazines		
 Identify laboratory safety measures Ensure laboratory safety measures are followed Summarize the characteristics of an ideal bacteriological indicator State the advantages and disadvantages of the Total Coliform Group as an indicator organism List the various bacteriological analysis techniques for water testing Compare the advantages and disadvantages of the MF technique List the bacteria groups commonly cultured using the MF technique Prepare equipment for analysis Sterilize equipment 1 Understand the purpose of sterilizing equipment before testing Sterilize glassware, except when in metal containers, not less than 60 min at 170C Sterilize glassware in metal containers for 2 h at 170C Sterilize plastic bottles in autoclave for 15 min at 121C Prepare buffer solution Describe the purpose of buffer solutions in bacteriological testing Dissolve 34.0g potassium dihydrogen phosphate in 500 mL reagent grade water Adjust pH to 7.2+/- 0.5 with 1 N sodium hydroxide Aljust to 1 L with reagent grade water Prepare dilution water Describe the uses of dilution water in bacteriological testing 		

14.f.(2)(g)1. Membrane filter technique 11.2 Describe the properties of dilution water 11.3 List the equipment and supplies necessary to prepare dilution water 11.4 Prepare potassium phosphate buffer solution 11.5 Prepare magnesium chloride solution (81.1 g MgCl ₂ x 6H ₂ O / L reagent grade water)	SK
11.2 Describe the properties of dilution water 11.3 List the equipment and supplies necessary to prepare dilution water 11.4 Prepare potassium phosphate buffer solution 11.5 Prepare magnesium chloride solution (81.1 g MgCl ₂ x 6H ₂ O / L reagent grade	
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solution 11.5 Prepare magnesium chloride solution (81.1 g MgCl ₂ x 6H ₂ O / L reagent grade	
11.5 Prepare magnesium chloride solution (81.1 g MgCl ₂ x 6H ₂ O / L reagent grade	
(81.1 g MgCl ₂ x 6H ₂ O / L reagent grade	
11.6 Describe the sequential procedures for	
preparing buffered dilution water	
11.7 Clean all glassware	
11.8 Pipet 1.25 mL potassium phosphate into	
1L bottle	
11.9 Pipet 5 mL magnesium chloride 11.10 Add distilled water to a total of 1 L	
11.10 Add distilled water to a total of 1 L 11.11 Cap and sterilize in autoclave at 121C for	
30 min	
11.12 Remove, cool and store	
11.13 Describe the sequential procedures for	
preparing peptone dilution water	
11.14 Prepare a 10% solution of peptone in	
distilled water	
11.15 Dilute a measured volume to provide a	
final 0.1% solution, with a final pH of 6.8 11.16 Dispense in amounts to provide 99+/-	
2.0mL or 9.0+/-0.2mL after autoclaving for	
15 min	
11.17 Ensure bacteria is not suspended in	
dilution water for than 30 min	
12. Conduct bacteriological analysis using the	
sequential steps of the Membrane Filter	
Technique* Y 12.1 Prepare LES Endo agar and M-Endo	
culture medium using Standard Methods	
procedures	
12.2 State the storage procedures for culture	
media	
12.3 Store powders in tightly closed bottles in	
the dark at no more than 30C in low	
humidity. 12.4 Use powders less than six months after	
opening	
12.5 Use the Standard Methods holding times	
for culture media	
12.6 Store liquid media in fermentation tubes at	
25C for no more than 1 week	
12.7 Label petri dishes with sample location	
and number	
12.8 Sterilize forceps and use them to place media pads in the petri dishes, avoiding	
contamination	
12.9 Pipet 2 mL of M-Endo media into each	

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
14.f.(2)(g)1.	Membrane filter technique	b	
	dish, letting it soak through the pad		
	12.10 Pour off any excess medium, and set lids		
	loosely on the petri dishes		
	12.11 Position filter holder of the filtration		
	apparatus on top of the evacuation flask firmly		
	12.12 Place sterile filter over porous plate of		
	receptacle (grid side up)		
	12.13 Place matched funnel unit over receptacle		
	and lock into place		
	12.14 Filter 100 mL sample under partial		
	vacuum		
	12.15 Rinse funnel by filtering three 20-30 mL		
	portions of sterile dilution water		
	12.16 Turn on the vacuum pump to run the		
	sample through		
	12.17 Unlock, remove funnel, remove filter, and		
	place sterile pad grid up on the culture		
	media with a rolling motion to avoid		
	entrapment of air		
	12.18 Close petri dish lid tightly		
	12.19 Incubate sample upside down at 35C +/- 5C for 18 to 24 h		
	13. Repeat filter for 10 samples		
	14. Insert sterile rinse water sample to check for		
	possible cross-contamination		
	15. Incubate control membrane culture under		
	same conditions as sample		
	16. Decontaminate equipment between filtrations		
	17. Use low power (10-15 magnifications)		
	microscope to examine cultures*		Υ
	18. Observe for typical or atypical colonies and		
	count the number observed on each filter with		
	a white light source directly above*		Υ
	19. Verify colonies by following methods		
	presented		
	in SM		
	20. Compute the count using membrane filters		
	with		
	up to 80 coliform colonies and not more than		Y
	200 colonies of all types per membrane by the following equation: TCC/100mL=(coliform		T T
	colonies counted x 100)/mL sample filtered*		
	21. Report results of MFT testing		
	21.1 If confluent growth, report it and sample		
	again from the same location		
	21.2 If colonies exceed 200 per filter, report it		
	as Too Numerous to Count (TNTC)		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:	
	EQ-25

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol. 1, Sect. 033

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Sterilizer, buffer solution supplies, dilution water supplies, lab glassware, culture media supplies, membrane filter kit, microscope, log book.

ADDITIONAL SUPPORTING MATERIALS: Sterile lab environment.

SPECIFIC TECHNIQUES: Ensure students adhere to aseptic procedures.

TRAINER REFERENCES:

40 CFR 141.21(f)(3)(ii)

40 CFR 141.21(f)(4)

40 CFR 141.21(f)(5)

Standard Methods for the Examination of Water and Wastewater, 18th Edition 1992, Section 9222 B.

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NOTES:		

BLOCK TITLE Environmental Quality MODULE TITLE Drinking Water Surveillance

TASK OBJECTIVE: Conduct analysis of samples using the MMO-MUG method

CONDITIONS: Given a requirement to test drinking water for total coliform bacteria

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK/SUB-TASK TITLE		MANDATORY
	CODE	SUB-TASK
IMO-MUG	b	
 Identify laboratory safety measures Ensure laboratory safety measures are followed Summarize the characteristics of an ideal bacteriological indicator State the advantages and disadvantages of the Total Coliform Group as an indicator organism List the various bacteriological analysis techniques for water testing Compare the advantages and disadvantages of the MMO-MUG (Autoanalysis Colilert) technique List the bacteria groups cultured using the MMO-MUG technique Prepare equipment for analysis Select sampling locations Collect sample Conduct bacteriological analysis using the MMO-MUG technique* 11.1 Prepare/Obtain reagent Set up 10 10 mL tubes Add 10 mL of sample to each tube Gently mix in prepared reagent in each tube to produce a colorless solution Incubate the tubes at 35C for 24 h Identify positive results (development of yellow) Expose positive tubes to a hand-held fluorescent(366 nm) light Identify presence of E. coli with the 		Y
	Identify laboratory safety measures Ensure laboratory safety measures are followed Summarize the characteristics of an ideal bacteriological indicator State the advantages and disadvantages of the Total Coliform Group as an indicator organism List the various bacteriological analysis techniques for water testing Compare the advantages and disadvantages of the MMO-MUG (Autoanalysis Colilert) technique List the bacteria groups cultured using the MMO-MUG technique Prepare equipment for analysis Select sampling locations Collect sample Conduct bacteriological analysis using the MMO-MUG technique* 11.1 Prepare/Obtain reagent 11.2 Set up 10 10 mL tubes 11.3 Add 10 mL of sample to each tube 11.4 Gently mix in prepared reagent in each tube to produce a colorless solution 11.5 Incubate the tubes at 35C for 24 h 11.6 Identify positive results (development of yellow) 11.7 Expose positive tubes to a hand-held fluorescent(366 nm) light	MMO-MUG Identify laboratory safety measures Ensure laboratory safety measures are followed Summarize the characteristics of an ideal bacteriological indicator State the advantages and disadvantages of the Total Coliform Group as an indicator organism List the various bacteriological analysis techniques for water testing Compare the advantages and disadvantages of the MMO-MUG (Autoanalysis Colilert) technique List the bacteria groups cultured using the MMO-MUG technique Prepare equipment for analysis Select sampling locations Collect sample Conduct bacteriological analysis using the MMO-MUG technique* 11.1 Prepare/Obtain reagent 11.2 Set up 10 10 mL tubes 11.3 Add 10 mL of sample to each tube 11.4 Gently mix in prepared reagent in each tube to produce a colorless solution 11.5 Incubate the tubes at 35C for 24 h 11.6 Identify positive results (development of yellow) 11.7 Expose positive tubes to a hand-held fluorescent(366 nm) light 11.8 Identify presence of E. coli with the

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:
DDEDEOLUCITES: NONE
PREREQUISITES: NONE
CDC REFERENCE: N/A
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Lab glassware and supplies, fluorescent light, reagent supplies, log book
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Ensure students adhere to aseptic procedures.
TRAINER REFERENCES:
40 CFR 141.21(f)(3)(iv) 40 CFR 11.21(f)(5)
Edberg, Stephen C., et al. "National Field Evaluation of a Defined Substrate Method for the Simultaneous Detection of Total Coliforms and Escherichia coli from Drinking Water: Comparison with Presence-Absence Techniques", Applied and Environmental Microbiology, Apr. 1989, p. 1003-1008.
NOTES:

BLOCK TITLE Environmental Quality

MODULE TITLE Drinking Water Surveillance

TASK OBJECTIVE: Interpret the test results

CONDITIONS: Given a drinking water sample tested for total coliform and a stated population

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
14.f.(2)(h)	Interpret bacteriological analysis results	b	
	 Identify three standards to examine when using the membrane filter technique* Review each method for the presence of 		Y
	coliform colonies*		Y
	3. Identify typical colonies by visual inspection4. Determine when drinking water standards are		
	exceeded and take appropriate actions* 5. If standards are exceeded, take necessary actions to continue analysis of the water		Y
	Judge the quality of the water supply by examining bacteriological results in conjunction with sanitary survey results		
	7. If positive cultures result from the Membrane Filter Technique, confirm results by conducting the Multiple Tube Fermentation tests		

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE				
CDC REFERENCE: 90750 Vol. 1, Sect. 033, 035				
QTP REFERENCE: TBD				
TRAINING AND EVALUATION TECHNIQUES:				
EQUIPMENT: NONE				
ADDITIONAL SUPPORTING MATERIALS: NONE				
SPECIFIC TECHNIQUES: NONE				
TRAINER REFERENCES:				
AFI 48-119, 9.6.3 AFI 144-103 40 CFR 141.21(f)(5) 40 CFR 141.63 Standard Methods for the Examination of Water and Wastewater, 18th Edition 1992, Section 9000.				
NOTES:				

BLOCK TITLE Environmental Quality MODULE TITLE
Drinking Water Surveillance

TASK OBJECTIVE: Identify documentation requirements

CONDITIONS: Given drinking water samples tested for total coliform for a stated population

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
14.f.(2)(j)	Document Results	b	
	 Record results of water testing Identify compliance and non-compliance reporting requirements for water analyses results* List the record keeping requirements for water analyses results* Annotate date and time of test, volume filtered, total coliform per filter and total coliform per 100 mL as required Provide potable water analyses to appropriate agencies, as required Maintain records of water quality analyses at the base, as required 		Y

These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:

BLOCK TITLE Environmental Quality MODULE TITLE Drinking Water Surveillance

TASK OBJECTIVE: Collect and preserve samples

CONDITIONS: Given a requirement to sample drinking water for physical, chemical, or radiological analysis, frequency and number requirements

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE		MANDATORY
		CODE	SUB-TASK
14.f.(3)(d)	Collect and preserve water samples for	b	
	analyses		
	Select and prepare sampling containers		
	according to AL Sampling Guide, Standard		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
	Methods, and/or state requirements*		Y
	1.1 List sample container selection criteria		
	1.2 List typical sample containers used in the Air Force		
	1.3 List the steps in preparing glass		
	containers for sample collection		
	2. Run water long enough to get a representative		
	sample		
	3. Rinse the container several times unless it		
	contains a preservative		
	4. Collect and preserve the sample*		Y
	4.1 State the advantages and		
	disadvantages of using automatic or		
	manual sampling		
	4.2 Use either manual or automatic		
	sampling methods to collect a sample		
	4.3 Using the sampling requirements table		
	provided in AL Sampling Guide,		
	Standard Methods, and/or state		
	requirements determine the minimum		
	sample size, preservation method, and		
	maximum storage time for the samples	;	
	collected		
	4.4 Determine physical properties of water		
	samples		
	4.5 Determine temperature, pH and		
	dissolved gases in the field immediately	y	

*	l hese mandator	y sub-tasks r	nust be complet	ted in order to	o receive a "G	30" for this task
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LOCAL REQUIREMENTS:

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol. 1, Sect. 040

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Sample container, AL Sampling Guide

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Conduct training and evaluation using an

actual scenario.

TRAINER REFERENCES:

AFI 44-103

AFI 48-119; 9.6.3

40 CFR 141

49 FR 209

Standard Methods for the Examination of Water and Wastewater, 18th Edition 1992, Section 1060.

NOTES:

BLOCK TITLE Environmental Quality MODULE TITLE Drinking Water Surveillance

TASK OBJECTIVE: Identify the steps to take when transporting the sample to a lab for analysis

CONDITIONS: Given a water sample which is to be tested for chemical or radiological analysis

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
14.f.(3)(g)	Transport or ship bacteriological drinking	b	
	water samples		
	Coordinate sampling analyses with sampling laboratory if appropriate		
	Identify the transportation/storage holding times for samples collected according to AL Sampling Guide and state or local guidance		Y
	3. Prepare samples for transportation according to appropriate guidance		
	Prepare all appropriate documentation required for transport to lab		
	4.1 Identify proper sample chain-of-custody requirements		
	5. Ship samples		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task.

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol.1, Sect.040
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Water sample which has been tested, AL Sampling Guide, shipping materials, chain-of-custody documentation
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Verify students prepare samples properly for shipment
TRAINER REFERENCES:
AL Sampling Guide 40 CFR 141
NOTES:

BLOCK TITLE Environmental Quality

MODULE TITLE Drinking Water Surveillance

TASK OBJECTIVE: Interpret sample results

CONDITIONS: Given the physical, chemical, or radiological results of a drinking water sample

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE		MANDATORY
		CODE	SUB-TASK
14.f.(3)(i)	Interpret results of chemical, physical, and	b	
	radiological water analysis		
	Use the procedures outlined in Standard		
	Methods to interpret results of the water		
	analyses		
	2. Compare the results of chemical analyses with		
	federal, state, and local standards*		Y
	3. Compare the results of turbidity analyses with		
	federal, state, and local standards *		Y
	Compare the results of radiological analyses		
	with federal, state, and local standards *		Y
	5. Confirm the result with another sample		
	Re-sample if necessary		
	7. Investigate the problem		

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:

PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol. 1, Sect. 041
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Standard Methods or AL Sampling Guide
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: NONE
TRAINER REFERENCES:
AFI 48-101 AFI 48-119; 9.6.3.4 40 CFR 141.23(a)(4) 40 CFR 143 Standard Methods for the Examination of Water and Wastewater, 18th Edition 1992
NOTES:

BLOCK TITLE Environmental Quality MODULE TITLE Drinking Water Surveillance

TASK OBJECTIVE: Document results

CONDITIONS: Given the physical, chemical, or radiological results of a drinking water sample

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
14.f.(3)(j)	Document results of chemical, physical, and	b	
	radiological water analysis		
	Record results of water testing Identify compliance and non-compliance reporting requirements for water analyses results* Document the results IAW local procedures Maintain records of water quality analyses at the base, as required		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

OCAL REQUIREMENTS:	

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol. 1, Sect. 051

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Appropriate documentation/forms

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: NONE

TRAINER REFERENCES:

AFI 48-119, 9.6.3.4 AFI 48-101

NOTES:			

WASTEWATER SURVEILLANCE MODULE

The Wastewater Surveillance Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title
16.c.(2)(b)	Review waste disposal procedures in industrial case file
16.c.(3)(a)	Determine sampling methodology
16.c.(3)(b)	Identify locations and determine sampling frequency
16.c.(3)(c)	Select and prepare sample containers
16.c.(3)(g)	Interpret results of sampling

BLOCK TITLE Environmental Quality

MODULE TITLE Wastewater Surveillance Module

TASK OBJECTIVE: Examine wastewater disposal procedures

CONDITIONS: Given a industrial process case file with information on chemical usage

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
16.c.(2)(b)	Review waste disposal procedures in	b	
	industrial case file		
	Ensure disposal processes comply with worker and environmental protection regulations* Review industrial processes and waste disposal methods for compliance		Y
	Review waste storage facilities for compliance		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol. 1, Sect. 051

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: NONE

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: NONE

TRAINER REFERENCES:

AFI 32-1067; 4.4 AFI 32-7006 AFI 32-7041 AFI 48-119; 9.3, 9.4.1 AFI 48-119; 9.6.3.4.1

NOTES:		

BLOCK TITLE Environmental Quality

MODULE TITLE Wastewater Surveillance Module

TASK OBJECTIVE: Determine proper sampling methods

CONDITIONS: Given the requirement to maintain a wastewater surveillance program

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
16.c.(3)(a)	Determine sampling methodology	b	
	State the goals of wastewater sampling Define sample collection methods* Compare grab, composite, or integrated flow-proportioned composite sampling Identify manual and automatic sampling methods		Y
	 Determine what pollutant parameters to analyze for based on permit requirements or expected pollutants* 		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol. 1, Sect. 052

QTP REFERENCE: TBD

EQUIPMENT: NONE ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: NONE

TRAINING AND EVALUATION TECHNIQUES:

TRAINER REFERENCES:

AFI 32-7042 AFI 48-119, 9.3, 9.4.2. 40 CFR 403, Appendix E

NOTES:			

BLOCK TITLE Environmental Quality

MODULE TITLE Wastewater Surveillance Module

TASK OBJECTIVE: Determine locations and frequency for samples

CONDITIONS: Given the requirement and parameters for wastewater sampling

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
16.c.(3)(b)	Identify locations and determine frequency	b	
	 Identify locations which are representative of site conditions (including sampling points upstream from base discharges)* Identify seasonal effects on effluents, daily variations in water discharges, and changes in 		Y
	production which effect wastewater 3. Understand site identifier numbers are assigned at each sampling location * 4. Identify ideal conditions for sampling (i.e. rainy days for stormwater)		Y
	 5. Identify required number and frequency of samples for compliance with water pollution laws* 6. Coordinate with AL to establish a sampling schedule 		Y

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:

PREREQUISITES: NONE CDC REFERENCE: 90750 Vol. 1, Sect. 052 QTP REFERENCE: TBD TRAINING AND EVALUATION TECHNIQUES: **EQUIPMENT: NONE** ADDITIONAL SUPPORTING MATERIALS: NONE SPECIFIC TECHNIQUES: Conduct training and evaluation using an actual base scenario. TRAINER REFERENCES: AFI 32-1067 AFI 32-7041 AFI 48-119, 9.3, 9.4.2. 40 CFR 403, Appendix E NOTES:

BLOCK TITLE Environmental Quality MODULE TITLE Wastewater Surveillance

TASK OBJECTIVE: Determine appropriate sample containers and prepare them for collecting the sample

CONDITIONS: Given a requirement to sample wastewater

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

16.c.(3)(c) Select and prepare sample containers b 1. Use AL Sampling Guide, and appropriate state and local guidance to determine the containers to use 2. Use AL Sampling Guide, and appropriate state	STS TASK #	ASK # STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
Use AL Sampling Guide, and appropriate state and local guidance to determine the containers to use	16 c (3)(c)	3)(c) Select and prepare sample containers		SUD-TASK
and local guidance to determine the volume of sample required 3. Use AL Sampling Guide, and appropriate state and local guidance to determine the preservation requirements and holding times for each sampling parameter 4. Obtain sterile containers/sterilize containers for sampling 4.1 Before each use, examine glassware and discard items with chipped edges or etched inner surfaces 4.2 Clean and rinse bottles with distilled water and detergent 4.3 Conduct final rinse with distilled water 4.4 Sterilize bottles for at least 60 min at 170C in a sterilizing oven or 15min at	16.c.(3)(c)	 Use AL Sampling Guide, and appropriate state and local guidance to determine the containers to use Use AL Sampling Guide, and appropriate state and local guidance to determine the volume of sample required Use AL Sampling Guide, and appropriate state and local guidance to determine the preservation requirements and holding times for each sampling parameter Obtain sterile containers/sterilize containers for sampling Before each use, examine glassware and discard items with chipped edges or etched inner surfaces Clean and rinse bottles with distilled water and detergent Conduct final rinse with distilled water Sterilize bottles for at least 60 min at 	b	

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task.

LOCAL REQUIREMENTS:
LOCAL RECORDINENTS.
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol.1, Sect.052
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: AL Sampling Guide, applicable regulations, sampling containers, autoclave
ADDITIONAL SUPPORTING MATERIALS: Sterile lab environment
SPECIFIC TECHNIQUES: NONE
TRAINER REFERENCES:
AL Sampling Guide
AFOSH STD 48-22
Standard Methods, section1060
browns
NOTES:

BLOCK TITLE Environmental Quality

MODULE TITLE Wastewater Surveillance Module

TASK OBJECTIVE: Interpret sample results

CONDITIONS: Given the results of a wastewater sample

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
16.c.(3)(g)	Interpret results of sampling	b	
	 Verify analytical method of lab tests Compare analysis results to permit or other 		
	applicable standard*3. Compare upstream and downstream results for significant differences		Y
	4. Graph results for interpretation (level vs. time)*5. Check data for variations, trends, unexpected		Y
	results* 6. Determine whether results were due to errors either in sampling, analysis or calculations 7. Identify samples for re-examination and confirmation		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:	

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol. 1, Sect. 052

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Sample results, NPDES permit, graph paper

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Ensure the student can recognize the parts of the NPDES permit.

TRAINER REFERENCES:

AFI 32-7041

AFI 32-7045

AFI 48-101

AFI 48-119; 9.4.3, 9.4.4, 9.6.3.4

Standard Methods for the Examination of Water and Wastewater, 18th Edition 1992, Section 9000.

NOTES:			

HAZARDOUS WASTE SURVEILLANCE MODULE

The Hazardous Waste Surveillance Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title
17.d.(1)	Compile and maintain hazardous waste characterization and waste stream inventory
17.d.(3)	Review workplace and industrial processes and practices
17.d.(2)	Review disposal procedures
17.e.	Perform bulk sample collection
17.h.	Interpret results of hazardous waste sampling

PROCESS SOURCE SHEET # EQ 3-1

BLOCK TITLE Environmental Quality

MODULE TITLE Hazardous Waste Surveillance Module

TASK OBJECTIVE: Compile hazardous waste stream inventory and identify maintenance procedures

CONDITIONS: Given hazardous waste from an Air Force facility

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
17.d.(1)	Compile and maintain hazardous waste characterization and waste stream inventory	b	
	 Define the elements of hazardous waste characterization (Identification, description, and quantification of hazardous waste streams) Identify and describe hazardous waste streams through the installation waste analysis plan* Quantify hazardous waste streams through the hazardous waste stream inventory* Maintain copies of installation Hazardous Waste Profile Sheets (HWPS, DD Form 1930) in case file 		Y

* These	∘mandatorv	sub-tasks	must be a	completed in	order to	receive a	"GO" fa	or this task
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LOCAL REQUIREMENTS:

PREREQUISITES: NONE
CDC REFERENCE: N/A
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: HWPS
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: NONE
TRAINER REFERENCES:
AFI 32-7006 AFI 32-7042 AFI 48-101 AFI 48-119, 9.3 40 CFR 122.145(h) 40 CFR 61.341
NOTES:

PROCESS SOURCE SHEET # EQ 3-2

BLOCK TITLE Environmental Quality

MODULE TITLE Hazardous Waste Surveillance Module

TASK OBJECTIVE: Conduct a review of processes and practices impacting on hazardous waste generation

CONDITIONS: Given hazardous wastes generated in an Air Force facility

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
17.d.(3)	Review workplace and industrial processes and practices	b	
	Confirm the data collected on the Hazardous Waste Profile Sheets for each generator* Identify potential hazardous wastes that have not been profiled Determine the requirement to collect samples Collect samples of suspected hazardous materials to determine if waste streams are hazardous and should be included in the waste stream inventory Review disposal procedures for compliance with the waste disposal procedures*		Y

* Th	nese mandatory	/ sub-tasks	must be	completed in	order to	receive a	າ "GO" [.]	for this task
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LOCAL REQUIREMENTS:	

CDC REFERENCE: N/A
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: HWPS
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Conduct training and evaluation using an actual work place scenario
TRAINER REFERENCES:
AFI 32-7006 AFI 32-7042 AFI 40-201 AFI 44-103 AFI 48-119, 9.3 29 CFR 1910.1450 40 CFR 264, Subpart B, C, D
NOTES:

PREREQUISITES: NONE

PROCESS SOURCE SHEET # EQ 3-3

BLOCK TITLE Environmental Quality

MODULE TITLE Hazardous Waste Surveillance Module

TASK OBJECTIVE: Examine waste disposal procedures

CONDITIONS: Given hazardous wastes generated in an Air Force facility

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
17.d.(2)	Review disposal	b	
	State the requirements for hazardous waste disposal* 1.1 Ensure generators maintain Hazardous		Y
	Waste Profile Sheets for each waste 1.2 Ensure generators document disposal of hazardous wastes through the waste stream inventory		
	Determine proper disposal procedures for sites* Identify procedures used for hazardous waste storage		Y
	2.2 Identify proper disposal procedures for typical hazardous wastes found on installations		
	2.3 Identify disposal procedures for special wastes (i.e. medical wastes)		
	2.4 Identify disposal procedures for special wastes (i.e. radioactive wastes)		
	2.5 State disposal requirements of DRMO		
	Identify disposal alternatives		
	4. Identify land disposal restrictions (land ban)		

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

CDC REFERENCE: N/A QTP REFERENCE: TBD TRAINING AND EVALUATION TECHNIQUES: EQUIPMENT: HWPS, disposal procedures ADDITIONAL SUPPORTING MATERIALS: NONE SPECIFIC TECHNIQUES: NONE TRAINER REFERENCES: AFI 24-202; 1.2.5, 1.2.6, 8.2.5, 8.2.6, A8 AFI 32-7006 AFI 32-7042 AFI 40-201 AFI 44-103 AFI 48-119, 9.3 29 CFR 1910.1450 Appendix A, D.11 40 CFR 264, Subpart M, N, O 40 CFR 268, Subpart D NOTES:

PREREQUISITES: NONE

PROCESS SOURCE SHEET # EQ 3-4

BLOCK TITLE Environmental Quality

MODULE TITLE Hazardous Waste Surveillance Module

TASK OBJECTIVE: Identify the proper procedures for performing bulk sample collection

CONDITIONS: Given an unknown waste

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
17.e.	Perform bulk sample	b	
	 State the purpose for conducting and uses of 		
	hazardous waste sampling		
	Select sampling equipment and containers*		Υ
	Ensure safety measures are used when		
	collecting samples		
	4. Determine locations and frequency of sampling*		Y
	4.1 Select samples which are representative		
	of the total waste stream		
	4.2 If access to a container is unlimited,		
	divide it into an imaginary three		
	dimensional grid and sample each		
	section		
	4.3 If wastes are in several containers,		
	sample each container		
	4.4 Use composite samples where		
	appropriate (combine samples into a		
	single sample and analyze it)		
	5. Mark or otherwise identify sampling site		
	Record sample information		
	7. Fill out sample analysis request form and chain-		
	of-custody form		
	8. Ship sample to the laboratory		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: N/A
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Various sampling equipment, containers, marking equipment, appropriate documentation, chain of custody and analysis request forms, shipping materials
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Ensure trainees follow appropriate safety precautions (including proper PPE). Conduct hands on training and evaluation.
TRAINER REFERENCES:
AFI 32-7042 AFI 48-119, 9.3 EPA 6001 2-80-018 40 CFR 261, Appendix I 40 CFR 262
NOTES:

PROCESS SOURCE SHEET # EQ 3-5

BLOCK TITLE Environmental Quality

MODULE TITLE Hazardous Waste Surveillance Module

TASK OBJECTIVE: Interpret results

CONDITIONS: Given bulk sample analysis data

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify the relationship of basic facts and state general principles about the subject. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
17.h.	Interpret results of hazardous waste	b	
	sampling		
	 Examine the physical state of the waste, the density, flashpoint, and pH for liquids, and total solids and presence of layers Evaluate results for indications of corrosivity, toxicity, and other hazardous characteristics Determine whether free liquids are a component of the waste Determine the concentration of metals and other compounds Compare identified substances and concentrations with standards* Document results (i.e. on HWPS for disposed wastes) 		Y

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:

CDC REFERENCE: N/A QTP REFERENCE: TBD TRAINING AND EVALUATION TECHNIQUES: **EQUIPMENT:** Sample results ADDITIONAL SUPPORTING MATERIALS: NONE SPECIFIC TECHNIQUES: NONE TRAINER REFERENCES: AFI 32-7006 AFI 32-7042 AFI 48-119; 9.3, 9.9, 9.10, 9.11 40 CFR 261, Appendix I 40 CFR 261, Appendix III EPA Pub SW-846 NOTES:

PREREQUISITES: NONE

INDUSTRIAL HYGIENE BLOCK

The Industrial Hygiene Block consists of the following Qualification Training Package (QTP) Modules:

Number	Module Title	Page
IH1	Regulatory Research Module	IH2
IH2	Conducting Technical Training Module	IH7
IH3	Workplace Surveillance Module	IH13
IH4	Hazardous Materials Management Module	IH25
IH5	Biohazards Module	IH31
IH6	Noise Module	IH42
IH7	Thermal Stress Module	IH62
IH8	Ionizing Radiation Module	IH70
IH9	Radiofrequency Radiation Module	IH83
IH10	Confined Space Module	IH115
IH11	Chemical Exposures Surveillance Module	IH125
IH12	Air Surveillance Module	IH147
IH13	Ventilation Module	IH164
IH14	Control Measures Module	IH175
IH15	Using Personal Protective Equipment Module	IH181
IH16	Advanced Topics in Personal Protective Equipment Module	IH194

REGULATORY RESEARCH MODULE

The Regulatory Research Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title
20.b.(1)	Identify appropriate CFR used for identification, recognition, and control of specific health hazards
20.c.(1)	Identify appropriate AFOSH STD used for identification, recognition, and control of specific health hazards

PROCESS SOURCE SHEET # IH 1-1

BLOCK TITLE Industrial Hygiene

MODULE TITLE Regulatory Research

TASK OBJECTIVE: Research appropriate federal regulations that correspond to specific industrial operations and their related health hazards

CONDITIONS: Given the Code of Federal Regulations and specific types of industrial operations found on base

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
20.b.(1)	Identify appropriate CFR used for identification, recognition, and control of specific health hazards	b	
	 Recognize the requirement to research state and local regulations Recognize the requirement to research federal regulations Recognize the requirement to research DoD and Air Force directives Understand the relationship between federal, DoD, Air Force, state, and local regulations Understand the CFR numbering system Describe the use of the CFR index to locate regulatory guidance Describe the use of the electronic CFR to locate regulatory guidance Research the CFR for hazards Research the CFR for personal protective equipment Research the CFR for common operations 		

LOCAL REQUIREMENTS:
PREDECTIGITES NONE
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol.1, Sect.002
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Paper and electronic copies of the Code of Federal Regulations
ADDITIONAL SUPPORTING MATERIALS: Computer
SPECIFIC TECHNIQUES: The trainer may develop a scenario based on an actual industrial operation found on base.
TRAINER REFERENCES:
Title 29, Code of Federal Regulations AFOSH STD 48-17
NOTES:

PROCESS SOURCE SHEET # IH 1-2

BLOCK TITLE Industrial Hygiene

MODULE TITLE Regulatory Research

TASK OBJECTIVE: Research appropriate AFOSH STDs that correspond to specific industrial operations and their related health hazards

CONDITIONS: Given AFOSH Standards and specific types of industrial operations found on base

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
20.c.(1)	Identify appropriate AFOSH STD used for identification, recognition, and control of specific health hazards	b	
	 Recognize the requirement to research federal regulations Recognize the requirement to research state and local regulations Recognize the requirement to research DoD and Air Force directives Understand the relationship between federal, DoD, Air Force, state, and local regulations Describe the use of the AFIND17 index to locate Air Force regulatory guidance Describe the use of electronic libraries to locate Air Force regulatory guidance Research AFOSH STDs for hazards Research AFOSH STDs for personal protective equipment Research AFOSH STDs for common operations 		

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol.1, Sect.003
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: AFIND 17
ADDITIONAL SUPPORTING MATERIALS: Computer access
SPECIFIC TECHNIQUES: The trainer may develop a scenario based on an actual industrial operation found on base.
TRAINER REFERENCES:
AFIND 17 Bioenvironmental Engineering Program Directives Report
NOTES:

CONDUCTING TECHNICAL TRAINING MODULE

The Conducting Technical Training Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title
8.b.(1)	Conduct specialized training on occupational and environmental hazards
8.b.(2)	Conduct in-service or other training

PROCESS SOURCE SHEET # IH 2-1

BLOCK TITLE Industrial Hygiene

MODULE TITLE Conducting Technical Training

TASK OBJECTIVE: Conduct specialized training on occupational and environmental hazards

CONDITIONS: Given an occupational or environmental training requirement or deficiency

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
8.b.(1)	Conduct specialized training on occupational and environmental hazards	b	
	 Identify audience, frequency and special requirements Determine lesson objective(s) Conduct research Determine research goals Identify potential sources of information Select applicable material Develop evaluation criteria Select instructional method Determine lesson format/outline Prepare main body Prepare introduction and conclusion Procure training aids, space and equipment Determine quantity/size required based on number of students Identify source or controlling agency Complete request or reservation form/procedures Conduct rehearsals Finalize list of attendees Review reference materials prior to training Conduct training Conduct student evaluation Conduct course/instructor evaluation Document evaluation results 		

LOCAL REQUIREMENTS:

PREREQUISITES: NONE

CDC REFERENCE: N/A

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Evaluation sheets, training aids and equipment, as

required

ADDITIONAL SUPPORTING MATERIALS: Classroom/training area

SPECIFIC TECHNIQUES: The trainer should focus on the overall organization, presentation skills, and subject matter content of the training session.

TRAINER REFERENCES:

AFI 36-2201 AFMAN 36-2236 AFOSH STD 48-21 AFI 48-119 AFI 48-101 AFI 32-4001 AFI 41-201 29 CFR 1910.120

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NOTES:		

PROCESS SOURCE SHEET # IH 2-2

BLOCK TITLE Industrial Hygiene

MODULE TITLE Conducting Technical Training

TASK OBJECTIVE: Conduct in-service or other mandated training

CONDITIONS: Given a training requirement or deficiency

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

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STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
8.b.(2)	Conduct in-service or other training	b	
	 Identify audience, frequency and special requirements Obtain or prepare lesson plans and materials Procure training aids, space and equipment Conduct rehearsals Finalize list of attendees Review reference materials prior to training Conduct training Conduct student evaluation Evaluate training effectiveness 		
	10. Document training session		

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: N/A

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Training package, training aids and equipment, as required

ADDITIONAL SUPPORTING MATERIALS: Classroom/training area, training documentation sheets

SPECIFIC TECHNIQUES: The trainer should focus on the overall organization and presentation skills for the training session.

TRAINER REFERENCES:

AFI 36-2201 AFMAN 36-2236 AFI 10-403 AFI 32-4001 AFI 41-201

NOTES:

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WORKPLACE SURVEILLANCE MODULE

The Workplace Surveillance Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title
20.d.(1)	Survey scope
20.d.(2)	Survey frequency
20.d.(3)	Interview shop personnel
20.d.(4)	Task/process description
20.h.(1)	Document workplace surveys or visits

PROCESS SOURCE SHEET # IH 3-1

BLOCK TITLE Industrial Hygiene

MODULE TITLE Workplace Surveillance

TASK OBJECTIVE: Determine the scope of a workplace surveillance survey

CONDITIONS: Given a specific industrial worksite and survey team configuration

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
20.d.(1)	Survey scope	b	
	Anticipate potential hazards associated with workplace processes and procedures* Identify the type of survey being performed		Y
	1.2 Select functional areas to focus on based on last survey, new processes/ operations, and recent complaints		
	Recognize potential hazards associated with workplace processes and procedures* 1 Identify potential biological hazards 2.2 Identify potential chemical hazards 1 Identify potential physical hazards		Y
	Evaluate potential hazards associated with workplace processes and procedures* 3.1 Identify factors that influence the survey scope, including time, number of workers, and number of investigators 3.2 Predict potential hazards 3.3 Quantify potential hazards		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task.

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol.2, Sect.205, 207
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: NONE
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: This task should be trained and evaluated at an actual industrial worksite.
TRAINER REFERENCES:
AFOSH STD 48-17 AFOSH STD 48-8
29 CFR 1910.120(f)(1), (2)
NOTES:

PROCESS SOURCE SHEET # IH 3-2

BLOCK TITLE Industrial Hygiene

MODULE TITLE Workplace Surveillance

TASK OBJECTIVE: Determine the frequency of workplace surveillance surveys

CONDITIONS: Given an industrial operation requiring surveillance

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.d.(2)	Survey frequency	b	
	 Recognize the requirement to conduct a baseline survey for new facilities/operations* Recognize the requirement to conduct routine surveys, including annual, quarterly, and semi-annual surveys* List the conditions which prompt a special survey* Recognize changes in raw materials, equipment, personnel, work practices, or finished products that may result in personnel being exposed to a potential hazard at or above the action level Recognize situations where personnel already exposed at the action level may be exposed above the OEL 		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task.

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.2, Sect.205, 206

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: NONE

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: This may be trained and evaluated using workplace scenarios, or actual sites.

TRAINER REFERENCES:

AFOSH STD 48-8 AFOSH STD 48-17 29 CFR 1910.120(f)(3)

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NOTES:		

PROCESS SOURCE SHEET # IH 3-3

BLOCK TITLE Industrial Hygiene

MODULE TITLE Workplace Surveillance

TASK OBJECTIVE: Conduct interviews to collect information during workplace surveillance surveys

CONDITIONS: Given shop personnel at an industrial worksite, and the requirement to conduct workplace surveillance

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
22 1 (2)		CODE	SUD-TASK
20.d.(3)	Interview shop personnel	b	
	 Schedule survey with shop supervisor and other required personnel Brief personnel on purpose and sequence of interviews Interview personnel to identify each task or 		
	process performed in the shop*		Y

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task.

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.2, Sect.206 QTP REFERENCE: TBD TRAINING AND EVALUATION TECHNIQUES: **EQUIPMENT: NONE** ADDITIONAL SUPPORTING MATERIALS: NONE SPECIFIC TECHNIQUES: This task may be trained and evaluated using workplace scenarios, or actual sites. TRAINER REFERENCES: AFOSH STD 48-8 AFOSH STD 48-17 29 CFR 1928.1027 App.D 29 CFR 1926.64 App C, 12 NOTES:

PROCESS SOURCE SHEET # IH 3-4

BLOCK TITLE Industrial Hygiene

MODULE TITLE Workplace Surveillance

TASK OBJECTIVE: Document operational tasks and processes identified during a workplace surveillance survey

CONDITIONS: Given an industrial operation, and the requirement to conduct workplace surveillance

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.d.(4)	Task/process description	b	
	Describe the task/process to be evaluated, including those operating parameters affecting the severity of the hazard* Describe the chemical, physical, or biological hazards Describe the role of the worker in the process or task		Y

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task.

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.2, Sect.207					
QTP REFERENCE: TBD					
TRAINING AND EVALUATION TECHNIQUES:					
EQUIPMENT: NONE					
ADDITIONAL SUPPORTING MATERIALS: NONE					
SPECIFIC TECHNIQUES: This task should be evaluated at an actual industrial worksite.					
TRAINER REFERENCES:					
AFOSH STD 48-17 AFOSH STD 48-8 DoDI 6055.5 29 CFR 1910.120(f)					
NOTES:					

PROCESS SOURCE SHEET # IH 3-5

BLOCK TITLE Industrial Hygiene

MODULE TITLE Workplace Surveillance

TASK OBJECTIVE: Document workplace surveys or visits

CONDITIONS: Given the requirement to conduct a workplace surveillance survey or visit

STANDARDS: STANDARDS: The student must receive a "GO" for 70% of all subtasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
20.h.(1)	Document workplace surveys or visits	b	
	Initiate and complete appropriate Air Force documentation* Maintain confidentiality of surveys and interviews, as required		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task.

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.2, Sect.207

QTP REFERENCE: TBD					
TRAINING AND EVALUATION TECHNIQUES:					
EQUIPMENT: Appropriate AF documentation forms					
ADDITIONAL SUPPORTING MATERIALS: NONE					
SPECIFIC TECHNIQUES: This task may be trained and evaluated using scenarios or actual site visits.					
TRAINER REFERENCES:					
AFOSH STD 48-17 NIOSH Pocket Guide to Chemical Hazards					
NOTES:					

HAZARDOUS MATERIALS MANAGEMENT MODULE

The Hazardous Materials Management Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title
20.e.(1)(a)3.	Research MSDS
20.e.(1)(a)1.	Review Hazardous Material reports

PROCESS SOURCE SHEET # IH 4-1

BLOCK TITLE Industrial Hygiene

MODULE TITLE Hazardous Materials Management

TASK OBJECTIVE: Research and identify health hazard data listed on the MSDS for a chemical substance

CONDITIONS: Given a chemical substance used in an industrial worksite

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE		PROF.	MANDATORY
			CODE	SUB-TASK
20.e.(1)(a)3.	Researc	h MSDS	b	
	1. Deter	mine the manufacturer and exact chemical		
		of substance from the shipping papers,		
		or chemical inventory		
		he HMIS research software to obtain		
		S information*		Y
		act manufacturer to obtain MSDS		
		nation, when necessary*		Y
		in MSDS sections and specific		V
	4.1	nation*		Y
	4.1	Determine the identity and manufacturer of the substance from Section I of the		
		MSDS		
	4.2	Identify exposure limits listed in Section		
	4.3	Identify the physical and chemical		
		characteristics of the material listed in		
		Section III		
	4.4	Identify fire and explosion hazards using		
		Section IV		
	4.5	Identify reactivity of the substance in		
	4.0	Section V		
	4.6	Identify health hazards and first aid		
		procedures associated with the		
	4.7	substance using Section VI		
	4.7	Advise on proper use and controls, as		
L	L	identified in Sections VII and VIII		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task.

LOCAL REQUIREMENTS:		

CDC REFERENCE: N/A

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: MSDS for a hazardous substance.

ADDITIONAL SUPPORTING MATERIALS: Computer with

HMIS access.

SPECIFIC TECHNIQUES: Focus on ability to determine health

hazard data.

TRAINER REFERENCES:

AFI 91-301 AFOSH STD 48-21 FED-STD313 DoDI 6055.5 29 CFR 1910.1200(g)

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NOTES:		

BLOCK TITLE Industrial Hygiene

MODULE TITLE Hazardous Materials Management

TASK OBJECTIVE: Identify potential health risks using hazardous material reports

CONDITIONS: Given appropriate hazardous materials issue reports and Issue Exception Code supply documentation

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
20.e.(1)(a)1.	Review Hazardous Material reports	b	
	Recognize health risks associated with hazardous materials listed on the report* Validate issue quantities listed on the report against Issue Exception Code supply documentation Describe interaction with HAZMAT cell		Υ

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task.

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.2, Sect.222

QTP REFERENCE: TBD					
TRAINING AND EVALUATION TECHNIQUES:					
EQUIPMENT: Hazardous Material Reports and IEX code supply documentation					
ADDITIONAL SUPPORTING MATERIALS: NONE					
SPECIFIC TECHNIQUES: NONE					
TRAINER REFERENCES:					
AFI 48-101 AFI91-301 AFOSH STD 48-17 FED-STD 313					
NOTES:					

BIOHAZARDS MODULE

The Biohazards Module consists of the following Specialty Training Standard (STS)

Tasks:

STS Number	Task Title
20.g.(2)	Evaluate biological exposure
20.g.(3)(b)1.	Work practices
20.g.(3)(a)2.	Enclosures
20.g.(3)(b)3.	Select proper PPE

BLOCK TITLE Industrial Hygiene

MODULE TITLE Biohazards

TASK OBJECTIVE: Evaluate the severity of the exposure

CONDITIONS: Given a potential biological exposure situation

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
20.g.(2)	Evaluate biological exposures	b	
	 List all potential biological exposure tasks Identify potential routes of exposure/entry (eyes, mouth, open wounds, parenteral, mucous membranes)* Identify potential occupational illnesses due to biological hazards* Recommend interim control measures while exposures are evaluated 		Y Y

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.2, Sect.207

QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: NONE
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Provide a typical scenario
TRAINER REFERENCES: AFOSH STD 48-22
NOTES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Biohazards

TASK OBJECTIVE: Identify workplace practices potentially contributing to an exposure

CONDITIONS: Given a workplace scenario with the potential for biohazard exposures

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STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.g(3)(b)1.	Work practices	b	
	Identify common workplace operations and		
	practices which may lead to biohazard		
	exposure*		Y
	2. Note the nonuse, misuse or malfunction of PPE		
	in the workplace		
	3. Verify workers conduct preventive maintenance		
	on equipment (i.e. checking HVAC systems to		
	prevent microorganism buildup)		
	4. Recommend workplace controls for protection		
	from bloodborne pathogens and other infectious		
	materials*		Υ
	4.1 Verify personal hygiene procedures are		
	followed (i.e. handwashing)		
	4.2 Verify garments that were penetrated by		
	blood or other potentially infectious		
	material are removed immediately		
	4.3 Verify that all personal protective		
	equipment is removed prior to leaving		
	the work area		
	4.4 Verify that personnel wear gloves when it		
	is anticipated that personnel will have		
	hand contact with blood or other		
	potentially infectious materials, mucous		
	membranes, and nonintact skin, when		
	performing vascular access		
	procedures		

STS TASK #		STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
			CODE	SUB-TASK
20.g(3)(b)1.	Work pr	actices	b	
	4.5	Verify workers remove gloves properly to		
		minimize exposure (roll gloves of each		
	4.6	hand and discard)		
	4.6	Verify that disposable gloves are replaced as soon as practical when		
		contaminated, if they are torn or		
		punctured, or when their ability to		
		function as a barrier is compromised		
	4.7	Verify that personnel wash their hands		
		immediately or as soon as feasible after		
		removal of gloves or other personal		
		protective equipment		
	4.8	Verify that personnel wash hands and		
		any other skin with soap and water, or flush mucous membranes with water,		
		immediately or as soon as feasible		
		following contact of such body areas		
		with blood or other potentially infectious		
		materials		
	4.9	Verify that contaminated needles and		
		other contaminated sharps are not bent,		
	4 40	recapped, or removed		
	4.10	Verify that containers for sharps are		
		puncture resistant, properly labeled and color-coded, and constructed in such a		
		way that personnel need not reach by		
		hand into the containers, if the sharps		
		are contaminated with blood or other		
		potentially infectious material		
	4.11	Verify that personnel do not eat, drink,		
		apply cosmetics or lip balm, or handle		
		contact lenses in work areas where there is a reasonable likelihood of an		
		occupational exposure		
	4.12	Verify that neither food nor drink is kept		
		in refrigerators, freezers, shelves,		
		cabinets, or on countertops or benchtops		
		where blood or other potentially		
	4.40	infectious materials are present		
	4.13	Verify that all procedures involving blood		
		or other potentially infectious materials are performed in such a manner as to		
		minimize splashing, spraying, splattering,		
		and generation of droplets of these		
		substances		
	4.14	Verify that personnel do not use the		
		techniques of mouth piping or suctioning		
		on blood or other potentially infectious		
	4.15	materials Verify that warning labels are affixed to		
	4.10	Verify that warning labels are affixed to containers of regulated waste		
		containers of regulated waste, refrigerators and freezers containing		

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.g(3)(b)1.	Work practices	b	
	blood or other potentially infectious material, and other containers used to store, transport, or ship blood or other potentially infectious material 4.16 Verify workers use appropriate PPE to prevent exposures 4.17 Verify that the labels conform to 29 CFR 1910.1030		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

CDC REFERENCE: N/A

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Personal protective equipment and example warning

labels

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Demonstrate proper techniques for using PPE

29 CFR 1910.1030

TRAINER REFERENCES:

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NOTES:		

BLOCK TITLE Industrial Hygiene

MODULE TITLE Biohazards

TASK OBJECTIVE: Identify biological hazard engineering controls

CONDITIONS: Given a workplace scenario with the potential for biohazard exposures

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.g(3)(a)2.	Enclosures	b	
	Identify isolation area situations		
	Determine atmospheric pressure		
	Determine room location		

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: N/A

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:				
EQUIPMENT: NONE				
ADDITIONAL SUPPORTING MATERIALS: NONE				
SPECIFIC TECHNIQUES: Training and evaluation may be knowledge based or in an actual workplace.				
TRAINER REFERENCES:				
AFOSH STD 48-22				
NOTES:				

BLOCK TITLE Industrial Hygiene

MODULE TITLE Biohazards

TASK OBJECTIVE: Select proper personal protective equipment for employees

CONDITIONS: Given a workplace scenario with the potential for biohazard exposures

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STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.g.(3)(b)3.	Select proper PPE	b	
	 Identify different PPE available for protection against biohazards (gloves, lab coats, face shields, masks, eye protection, mouth pieces, and pocket masks)* Select appropriate PPE by considering biohazard involved and its characteristics* Verify that personnel wear masks in combination with eye protection when splashes, spray, splatter, or droplets of blood or other potentially infectious materials may be generated and eye, nose, or mouth contamination are anticipated Verify that surgical caps or hoods and/or shoe covers or boots are worn in instances when gross contamination can reasonably be anticipated Verify that installation ensures that personnel who have contact with contaminated laundry wear protective gloves and other appropriate personal protective equipment Verify workers and supervisors know the proper techniques to use and care for PPE 		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol.2, Sect.214
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Personal protective equipment
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Conduct hands on training and evaluation
TRAINER REFERENCES:
AFOSH STD 48-22 AFOSH STD 48-17
NOTES:

NOISE MODULE

The Noise Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title
20.f.(2)(d)1.b.	Calibrate sound level meters
20.f.(2)(d)1.c.	Perform a sound level survey
20.f.(2)(d)3.c.	Calibrate and use dosimeter
20.f.(2)(d)1.e.	Calculate PEL for noise
20.f.(2)(d)1.d.	Calculate C ₁ /T ₁ and predict worker exposure
20.f.(2)(e)3.a.	Determine attenuation factors/noise reduction rating factors
20.f.(2)(e)3.b.	Conduct in-service or other training

BLOCK TITLE Industrial Hygiene

MODULE TITLE Noise

TASK OBJECTIVE: Calibrate sound level meters

CONDITIONS: Given various sound level meters, calibrators, and manufacturers instructions, and the requirement to conduct a sound level survey

STS TASK #		STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
			CODE	SUB-TASK
20.f(2)(d)1.b.	Calibrate	e sound level meters	b	
	1. Ensur	e the surrounding area/room is quiet		
		ate equipment according to manufacturers		
	instruc	ctions*		Y
	2.1	Prepare the SLM for calibration		
	2.1	.1Turn on the SLM and check the		
		batteries, as required		
	2.1	.2Set the SLM range switch to the		
		appropriate range, in accordance		
		with the manufacturers instructions		
	2.1	.3Set the speed and weighting in		
		accordance with the		
	manufacturers instructions			
	2.2	Turn on the calibrator and check the		
	0.0	batteries		
	2.3	Attach the calibrator to the SLM by		
		pushing the open end of the calibrator		
	2.4	over the SLM microphone		
	2.4	2.4 Turn the calibrator to the appropriate		
	2.5	setting Check the SLM to determine if it reads		
	2.5	within the acceptable range		
	2.6	Adjust the SLM as necessary		
	2.7	Turn off and separate the devices		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

CDC REFERENCE: 90750 Vol.3, Sect.418

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Sound level meters, calibration devices

ADDITIONAL SUPPORTING MATERIALS: Quiet classroom/training area

SPECIFIC TECHNIQUES: Verify that the trainee calibrates the SLM to within the acceptable range IAW manufacturer's instructions. Training and evaluation should be hands on.

TRAINER REFERENCES:

AFOSH STD 48-19 OSHA Technical Manual, Ch.4, 8 ANSI Standard S1.4-84

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BLOCK TITLE Industrial Hygiene

MODULE TITLE Noise

TASK OBJECTIVE: Perform a sound level survey

CONDITIONS: Given a worksite with possible noise hazards, various sound level meters, and the requirement to perform a sound level survey

		_	
STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f(2)(d)1.c	Perform a sound level survey	b	
	Interview key personnel to identify problems		
	and potential sources		
	Conduct a walkthrough inspection to identify		
	noise sources and sampling locations*		Y
	Determine the effect of environmental		
	conditions on the survey		
	Prepare a sound level meter (SLM) for		
	operation		
	4.1 Calibrate SLM prior to starting		
	4.2 Select "A" weighting and slow response		
	4.3 Place windscreen on SLM, if necessary		
	5. Operate the SLM*		Υ
	5.1 Determine background noise by turning		
	noise source off and measuring the		
	noise level		
	5.2 Hold SLM at operator's position parallel		
	to the ground, at a 90 degree angle to		
	the source, meter face upward, and		
	away from the body, as required		
	5.3 Set the SLM at the highest dB range		
	and decrease until the needle is near		
	the center of the range (for the GR		
	1565-B)		
	5.4 Record "A" weighted sound		
	measurements		
	5.5 Switch to "C" weighting, and record		
	sound measurements		
	Calibrate SLM at the end of the survey		

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f(2)(d)1.c	Perform a sound level survey	b	
	7. Document survey findings on appropriate form (DD Form 2214)		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

CDC REFERENCE: 90750 Vol.3, Sect.418

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: SLM

ADDITIONAL SUPPORTING MATERIALS: Potentially hazardous noise source

SPECIFIC TECHNIQUES: Ensure the trainee gets accurate readings. Training and evaluation should be hands on, at an actual site.

TRAINER REFERENCES:

AFOSH STD 48-19 29 CFR 1910.95 App. G OTM Ch. 4

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BLOCK TITLE Industrial Hygiene

MODULE TITLE Noise

TASK OBJECTIVE: Calibrate and use a noise dosimeter

CONDITIONS: Given a worksite with noise hazards, a dosimeter, a calibrator, and the requirement to collect noise exposure data

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f(2)(d)3.c.	Calibrate and use dosimeter	b	
	 Identify minimum survey frequency and population size based on AFOSH STD 48-19 Calibrate dosimeter according to manufacturers 		
	instructions*		Υ
	3. Attach dosimeter to worker with microphone at shoulder, near the ear*		Υ
	4. Ensure microphone is in the vertical position5. Instruct the worker to perform duties in a normal fashion, without removing or shielding the dosimeter, and to document the times for all		
	break periods and significant noise exposures*		Y
	6. Check the dosimeter periodically to ensure the microphone is oriented properly*		Y
	7. Post-calibrate dosimeter, and retrieve exposure		
	data according to manufacturers instructions*		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

CDC REFERENCE: 90750 Vol.3, Sect.419

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Dosimeter, calibration device

ADDITIONAL SUPPORTING MATERIALS: Potentially

hazardous noise source

SPECIFIC TECHNIQUES: Training and evaluation should be hands

on, at an actual site

TRAINER REFERENCES:

AFOSH 48-19 OSHA Technical Manual, Ch. 8 AMETEK Mark Series Audio Dosimeter Operating Manual

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BLOCK TITLE Industrial Hygiene

MODULE TITLE Noise

TASK OBJECTIVE: Calculate the Permissible Exposure Limit (PEL) for a noise level

CONDITIONS: Given a worksite with noise hazards

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f(2)(d)1.e.	Calculate PEL for noise	b	
	Determine sound level using a sound level meter or dosimeter Identify PEL using tables listed in AFOSH STD		
	48-19*		Y
	3. Calculate PEL using the following formula: 480 X 2 ^[(85 - sound level)/3] = PEL in minutes*		Υ

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: N/A

QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: AFOSH STD 48-19
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: NONE
TRAINER REFERENCES:
AFOSH STD 48-19 DoDI 6055.12 29 CFR 1910.95(a), (b) ACGIH TLV Booklet
NOTES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Noise

TASK OBJECTIVE: Calculate a worker's total noise exposure in a worksite with varying noise levels

CONDITIONS: Given a worksite with varying hazardous noise levels

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
20.f(2)(d)1.d.	Calculate C ₁ /T ₁ and predict worker exposure	b	
	 Determine worker's total duration of exposure at each noise level (C₁, C₂Cn) 1.1 Determine sound level using a sound level meter 1.2 Measure length of time at each noise level Determine total duration of exposure permitted at each noise level (T₁, T₂Tn) 2.1 Identify PEL based on the duration of exposure Calculate the combined effect of different periods and levels of noise exposure using the following formula: C₁/T₁ + C₂/T₂ + Cn/Tn* Identify worker over-exposure when the result of the combined effect formula exceeds unity (1)* Determine the noise dose in percent by multiplying the result of the combined formula by 100 		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: N/A
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: NONE
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: This task may be trained or evaluated using workplace scenarios or actual sites.
TRAINER REFERENCES:
AFOSH STD 48-19 DoDI 6055.12
29 CFR 1910.95 App.A
ACGIH TLV Booklet
NOTES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Noise

TASK OBJECTIVE: Determine the noise reduction rating and the at-the-ear attenuation factor for hearing protectors

CONDITIONS: Given a worksite with hazardous noise levels, and hearing protectors

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f(2)(e)3.a.	Determine attenuation factors/noise	b	
	reduction rating factors		
	1. Identify Noise Reduction Rating (NRR) using		
	AFOSH STD 48-19, Armstrong Laboratory data,		
	or information listed on hearing protector		
	packaging*		Y
	2. Determine attenuation values using C-weighted		Y
	dosimeter measurements* 2.1 Obtain C-weighted dose for the entire		Y
	workshift		
	2.2 Determine the noise dose (D) in percent		
	2.3 Convert total dose to 8 hour TWA using		
	the following formula: TWA = 16.61		
	log_10 (D/100)+90		
	2.4 Subtract the NRR from the C-weighted		
	TWA to determine the at-the-ear sound		
	level		.,
	3. Determine attenuation values using A-weighted		Y
	dosimeter measurements*		
	3.1 Obtain A-weighted dose for entire workshift		
	3.2 Determine the noise dose (D) in percent		
	3.3 Convert total dose to 8 hour TWA using		
	the following formula: TWA = 16.61		
	log_10 (D/100)+90		
	3.4 Subtract 7 dB from the NRR to		
	determine the adjusted NRR		
	3.5 Subtract the adjusted NRR from the		
	TWA to determine the at-the-ear sound		Y

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f(2)(e)3.a.	Determine attenuation factors/noise	b	
	reduction rating factors		
	level		
	4. Determine attenuation values using a sound		
	level meter*		
	4.1 Conduct a sound level survey		
	4.2 Determine the noise dose (D) in percent		
	4.3 Convert total dose to 8 hour TWA using		
	the following formula: TWA = 16.61		
	log_10 (D/100)+90		
	4.4 Subtract 7 dB from the NRR to		
	determine the adjusted NRR		
	4.5 Subtract the adjusted NRR from the		
	TWA to determine the at-the-ear sound		
	level		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:

CDC REFERENCE: 90750 Vol.3, Sect.420

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: AFOSH STD 48-19, and various hearing protectors

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: NONE

AFOSH STD 48-19 29 CFR 1910.95 App.A, App.B		
NOTES:		

TRAINER REFERENCES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Noise

TASK OBJECTIVE: Select and inspect the appropriate hearing protectors for a specific worksite

CONDITIONS: Given a worksite with hazardous noise levels, calculated attenuation factors, and a variety of hearing protectors

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f.(2)(e)3.b.	Select and inspect proper protectors	b	
	Review the list of commonly used, Air Force		
	approved hearing protection devices*		Υ
	2. Determine which protectors attenuate at-the-ear		
	exposures below 85dB(A)*		Y
	Select hearing protection devices based on		
	worker exposure level, availability, comfort,		
	work interference, and additional site specific		
	requirements*		Υ
	Inspect hearing protection devices for		
	serviceability*		Υ
	4.1 Ensure earplugs are cleaned and dried		
	before and after use		
	4.2 Ensure earmuff cushions are cleaned,		
	and that the inside of the muff is never		
	wet		
	4.3 Verify storage of earmuffs in open air		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

CDC REFERENCE: 90750 Vol.3, Sect.420

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Various hearing protectors

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Conduct hands one training and

evaluation

TRAINER REFERENCES:

AFOSH STD 48-19 AFOSH STD 48-20 DoDI 6055.12 29 CFR 1910.95 (i), (j), App.A, App.B ANSI Standard S3.19-74

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NOTES:		

THERMAL STRESS MODULE

The Thermal Stress Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title
20.f.(1)(b)2.	Conduct specialized training on occupational and environmental hazards
20.f.(1)(b)3.	Calculate TWA WBGT
20.f.(1)(b)4.	Perform other temperature and humidity surveys

BLOCK TITLE Industrial Hygiene

MODULE TITLE
Thermal Stress

TASK OBJECTIVE: Perform a wet bulb globe thermometer survey

CONDITIONS: Given a WBGT field test kit, or a dry bulb thermometer, globe thermometer, wet bulb thermometer, thermometer stand, and indoor and outdoor test locations

STS TASK #		STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
			CODE	SUB-TASK
20.f.(1)(b)2.	Perform	wet bulb globe thermometer (WBGT)	b	
	survey			
		fy work and rest locations for WBGT		
	samp			
		uct interviews of key personnel		
		mine the WBGT using the WBGT field test		
	,	W manufacturer's instructions*		Y
		fy a Dry Bulb Thermometer		
		nble a Globe Thermometer		
	5.1	Measure the height of the globe		
	5.2	Place the stopper into the globe until a		
	F 2	snug fit is obtained		
	5.3	Measure the height of the stopper that		
	5.4	is protruding out of the globe Measure half the height of the globe,		
	3.4	then add the height of the protruding		
		stopper		
	5.5	Mark this measurement onto the		
	0.0	thermometer, beginning at the base		
	5.6	Insert the thermometer into the stopper		
		up to the measurement mark		
	6. Asser	nble a Wet Bulb Thermometer		
	6.1	Cut a 2"-3" piece of wick or shoestring		
	6.2	Slide the wick over the thermometer		
		until it is .5"75" above the bulb		
	6.3	Secure the wick by wrapping it with a		
		piece of copper wire		
	6.4	Place the thermometer assembly into a		
		flask filled with distilled water, secure it		

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f.(1)(b)2.	Perform wet bulb globe thermometer (WBGT)	b	
	survey		
	so that the bulb is about 1" above the		
	neck of the flask until the wick is		
	saturated		
	6.5 Adjust the thermometer so the bulb is		
	about .5" above the neck of the flask		
	after the wick becomes saturated		
	7. Assemble the WBGT apparatus so that the		
	thermometer bulb centerlines are 4' above the		
	ground		
	7.1 Ensure the wet bulb wick is saturated		
	with distilled water for at least 30		
	minutes		
	7.2 Place thermometer in open area for 5- 10 minutes		
	8. Read the wet bulb, dry bulb, and globe		
	thermometer readings		Y
	Calculate indoor WBGT using the following		
	formula: WBGT = (0.7 X Natural Wet Bulb		
	Temperature) + (0.3 X Globe Temperature)*		
	10. Calculate outdoor WBGT using the following		
	formula: WBGT = (0.7 X Natural Wet Bulb		
	Temperature) + (0.2 X Globe Temperature) +		
	(0.1 x Dry Bulb Temperature)*		
	11. Initiate and complete AF Form 2758		

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.3, Sect.412

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: WBGT field test kit, dry bulb thermometer, globe thermometer, wet bulb thermometer, thermometer stand

ADDITIONAL SUPPORTING MATERIALS: Indoor and outdoor sampling locations

SPECIFIC TECHNIQUES: Conduct hands on training and evaluation

TRAINER REFERENCES:

WBGT Field Test Kit Manufacturer's Instructions OSHA Technical Manual, Ch.3 & App.3B ACGIH TLV Booklet

NOTES:		

BLOCK TITLE Industrial Hygiene

MODULE TITLE
Thermal Stress

TASK OBJECTIVE: Calculate the time weighted average (TWA) wet bulb globe temperature (WBGT)

CONDITIONS: Given WBGT readings

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
20.f.(1)(b)3.	Calculate TWA WBGT	b	
	 Determine total time (T) spent in each area with different exposure levels Calculate TWA WBGT using the following formula: [(WBGT₁ X T₁) + (WBGT₂ X T₂) + + (WBGTn X Tn)] divided by T₁ + T₂ + + Tn)* 		٧

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.3, Sect.412

QTP REFERENCE: TBD

EQUIPMENT: NONE	
ADDITIONAL SUPPORTING MATERIALS: NONE	
SPECIFIC TECHNIQUES: NONE	
TRAINER REFERENCES:	
OSHA Technical Manual, Ch.3 & App.3B ACGIH TLV Booklet	
NOTES:	

TRAINING AND EVALUATION TECHNIQUES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE
Thermal Stress

TASK OBJECTIVE: Identify methods and equipment, other than WBGT, used to evaluate relative humidity and heat stress

CONDITIONS: Given a worksite with stressful thermal conditions, a sling psychrometer, and a hygrothermograph

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f.(1)(b)4.	Perform other temperature and humidity	b	
	surveys		
	 Determine temperature and humidity using a sling psychrometer, according to manufacturers instructions 1.1 Wet the coating/wick of the wet bulb 1.2 Determine wet and dry bulb readings 1.3 Use tables provided with the equipment to determine the dew point 1.4 Convert from dew point to relative humidity Determine temperature and humidity using a hygrothermograph, according to manufacturers instructions 		

LOCAL REQUIREMENTS	S:	

PREREQUISITES: NONE
CDC REFERENCE: N/A
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Sling psychrometer, hygrothermograph
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Conduct hands on training
TRAINER REFERENCES:
TO 33CS-10-1 OSHA Technical Manual, Ch.3
NOTES:

IONIZING RADIATION MODULE

The Ionizing Radiation Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title
25.e.(7)	Survey radioactive material use and/or storage areas
25.c.(5)	Investigate abnormal exposures, overexposures, or other incidents involving ionizing radiation
25.d.(1)	Enroll personnel on TLD program
25.d.(2)	Issue, collect, or exchange TLDs
25.d.(3)	Ship or store TLDs

BLOCK TITLE Industrial Hygiene

MODULE TITLE Ionizing Radiation

TASK OBJECTIVE: Evaluate radioactive materials use and storage

CONDITIONS: Given a radioactive material

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
25.e.(7)	Survey radioactive material use and/or	b	
	storage areas		
	1. Verify all commodities which contain radioactive		
	materials are labeled in accordance with MIL-		
	STD-129*		Y
	Verify users have the necessary radioactive		
	material permits		
	Identify items found on Air Force installations which require permits		
	Confirm that the RSO and authorized personnel		
	follow the procedures in receiving radioactive		
	materials		
	5. Perform leak testing of radioactive materials as		
	required		
	5.1 State the leak testing frequency		
	necessary for radioactive materials		
	5.2 Place an X on the side of a dry filter		
	paper that is to touch the tested area		
	5.3 Swab entire surface5.4 Avoid contact with the area by bare skin		
	5.5 Fill out AF Form 495 with identification		
	information and type of analysis required		
	5.6 Mail sample to AL		
	5.7 Identify any radioactive item with leak		
	results above threshold as waste		
	5.8 File leak test results in case files		
	6. Verify workers follow proper safe handling		
	measures for radioactive materials*		Υ
	6.1 Describe common unsafe practices		
	6.2 List measures to minimize exposures		

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
25.e.(7)	Survey radioactive material use and/or	b	
	storage areas		
	 7. Verify all storage areas are classified properly* 8. Verify there are no broken or damaged storage containers 9. Identify the survey frequency for radioactive storage areas 		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:	

CDC REFERENCE: 90750 Vol.4, Sect.611

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Dry filter paper

ADDITIONAL SUPPORTING MATERIALS: MIL-STD-129

SPECIFIC TECHNIQUES: Ensure trainees use proper safety

measures when performing leak testing

TRAINER REFERENCES:

AFI 40-201 TO 00-110N-2 TO 00-110N-3

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NOTES:		

BLOCK TITLE Industrial Hygiene

MODULE TITLE Ionizing Radiation

TASK OBJECTIVE: Investigate incidents involving personnel and ionizing radiation

CONDITIONS: Given the requirement to protect against radiation exposures, and a scenario involving reports of abnormal or overexposure

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
25.c.(5)	Investigate abnormal exposures, overexposures, or other incidents involving ionizing radiation	b	202 111011
	Coordinate with RSO to conduct investigation* 1.1 Obtain name, rank and SSN of individual affected and the physician 1.2 Identify radiation source and its operating parameters 1.3 Document a description of the incident 1.4 Obtain signed statements from individuals and witnesses 2. Collect TLD and investigation data 3. Forward TLD and investigation data		Y

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol.4, Sect.610
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: NONE
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: NONE
TRAINER REFERENCES:
AFI 48-125 AFI 40-201 AFI 48-101 AFI 48-119 29 CFR 1910.96 (l), (m)
NOTES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Ionizing Radiation

TASK OBJECTIVE: Identify personnel who should wear Thermoluminescent Dosimeters

CONDITIONS: Given the requirement to implement the US Air Force Dosimetry Program

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify why and when the task must be done and why each step is needed. (Proficiency level "c")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
25.d.(1)	Enroll personnel in the TLD program	С	
	 Define radiation areas Explain the different types of TLDs Identify the functions and capabilities of the TLD Identify personnel requiring placement on the program (Personnel potentially exposed to greater than 10% of dose equivalent limits prescribed in regulations, and certain radiation workers, such as pregnant workers) Add personnel to the program using AL Listing 1523, Dosimetry Data* Submit 1523 and call AL Request TLD holders, hangers, and other materials from AL 		Y

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:

CDC REFERENCE: 90750 Vol.4, Sect.609
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: AL Listing 1523
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: NONE
TRAINER REFERENCES:
AFI 48-125 DoD Instruction 6055.8 10 CFR 20.1502
NOTES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Ionizing Radiation

TASK OBJECTIVE: Manage the distribution of Thermoluminescent Dosimeters

CONDITIONS: Given the requirement to implement the US Air Force Dosimetry Program, and personnel enrolled in the program

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

STS TASK #		STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
SIS IASK π		515 TASK/50D-TASK TITEL	CODE	SUB-TASK
25 d (2)	locus o	allost or evaluate TLDs	b	SOD-TASK
25.d.(2)		ollect, or exchange TLDs TLD shipment from AL, and preserve	D	
		ing materials for future use		
		ect shipment and match ID labels with TLD		
		rs and hangers as listed on the 1523		
		mble whole body, Neutron, and Collar		
		neters		
	3.1	Open the dosimeter hanger with a small		
		screwdriver		
	3.2	Place the TLD holder into the side of the		
		hanger labeled front		
	3.3	Place the identification label on top of the		
		TLD holder so that it reads through the		
		back of the holder		
	3.4	Close the hanger		
	3.5	Place the spring clip on the assembly for		
		the whole body and collar dosimeters		
	3.6	Place the belt loop through the slots on		
		the side of the hanger for the neutron		
	4 00	dosimeter		
		act the area monitor and provide neters for issue to workers		
		n using activity personnel not to open the		
	dosin			
		re area monitors exchange dosimeters		
		nonitored personnel		
		ct exchanged dosimeters from area		
	monit	•		
		n dosimeters with suspected high		
		sure to AL as soon as possible		

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
25.d.(2)	Issue, collect, or exchange TLDs	b	
	 9. Take the dosimeter apart discarding the identification label 10. Compare the TLD holder number to the AL listing 1523 11. Annotate on the 1523 whether a lens and/or thyroid shield was worn by the monitored worker 12. Ensure that the RSO has noted any additions or deletions to the dosimetry program and return AL 1523 with the dosimeters 		

LOCAL REQUIREMENTS:		

CDC REFERENCE: 90750 Vol.4, Sect.609

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: TLDs, AL Listing 1523

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: NONE

TRAINER REFERENCES:

AFI 48-125

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NOTES:		

BLOCK TITLE Industrial Hygiene

MODULE TITLE Ionizing Radiation

TASK OBJECTIVE: Identify requirements for storing and returning Thermoluminescent Dosimeters

CONDITIONS: Given the requirement to implement the US Air Force Dosimetry Program

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
25.d.(3)	Ship or store TLDs	b	
	 Place the TLD holders in the original shipping container Complete the Shipping label Attach a "Caution" label to package Ship the TLD holder to AL Verify that for each dosimeter sent to AL, there is a matching entry on the AL listing 1523 Ship the AL listing 1523 to AL 		

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.4, Sect.609

QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: TLDs, AL Listing 1523
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: NONE
TRAINER REFERENCES:
AFI 48-125
NOTES:

RADIOFREQUENCY RADIATION MODULE

The Radiofrequency Radiation Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title
20.f.(4)(c)3.	Inventory sources
20.f.(4)(c)4.	Perform site presurveys
20.f.(4)(c)7.	Calculate hazard distances
20.f.(4)(c)9.	Select proper measurement equipment
20.f.(4)(c)10.	Calculate probe burnout
20.f.(4)(c)11.a	Ground based emitters
20.f.(4)(c)11.b	Airborne Radiofrequency (RF) emitters
20.f.(4)(c)13. a	Interview personnel
20.f.(4)(c)13.b	Calculate exposure times
20.f.(4)(c)13. c	Calculate compliance factors
20.f.(4)(c)13.d	Reconstruct incident
20.f.(4)(c)13. e	Recommend corrective actions
20.f.(4)(c)12.	Evaluate safe work practices

BLOCK TITLE Industrial Hygiene

MODULE TITLE Radiofrequency Radiation

TASK OBJECTIVE: Conduct a workplace inventory of RFR sources

CONDITIONS: Given the requirement to identify RFR sources

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f.(4)(c)3.	Inventory sources	b	
	1. Review AFOSH Std 48-9		
	2. Identify all RF emitters		
	2.1 Coordinate with base frequency		
	manager		
	2.2 Coordinate with work center		
	3. Review AF Form 2759 with shop personnel		Υ
	4. Update the Central Inventory*		
	4.1 Record hazard distance, hazard code,		
	using organization, and emitter location		
	4.2 Record next survey due date		
	Establish follow-up survey schedule		
	Distribute report to OPR		
	7. Make entries on AF Forms 2754 (Chronological		
	record of workplace surveillance)		
	8. File documentation in appropriate shop case file		

* The	se mandatorv	′ sub-tasks	must be	completed in	order to	receive a	"GO" for	this task
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LOCAL REQUIREMENTS:		

CDC REFERENCE: 90750 Vol.4, Sect.618 QTP REFERENCE: TBD TRAINING AND EVALUATION TECHNIQUES: EQUIPMENT: AFOSH STD 48-9, AF Form 2754
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: AFOSH STD 48-9, AF Form 2754
,
ADDITIONAL SUPPORTING MATERIALS: Simulated Central Inventory
SPECIFIC TECHNIQUES: Conduct training and evaluation in a simulated workplace scenario
TRAINER REFERENCES:
AFOSH STD 48-9
NOTES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Radiofrequency Radiation

TASK OBJECTIVE: Perform a pre-survey of the RFR source site

CONDITIONS: Given the requirement to evaluate RFR sources, and an inventory of RF emitters

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f.(4)(c)4.	Perform site presurveys	b	
	Make entries on AF Forms 2759 (Radio		
	Frequency Emitter Survey)*		Y
	1.1 Identify using organization		
	1.2 Record system nomenclature		
	1.3 Determine hazard code from the BEE		
	RFR guide		
	1.4 Complete the blocks describing the		
	emitter characteristics		
	1.5 Estimate the hazard distance, recording		
	the calculations		
	1.6 Indicate measured hazard distances and		
	the dates the surveys were performed		
	1.7 Evaluate operational procedures in		
	radiation exposure areas		
	1.8 Review RFR narratives (complete, if not		
	available)		
	1.9 Determine and recommend control		
	methods to protect workers from hazards	i	

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

CDC REFERENCE: 90750 Vol.4, Sect.618

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: AF Form 2759, BEE RFR Guide

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: NONE

TRAINER REFERENCES:

AFOSH STD 48-9

Trainer's Guide	Э
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NOTES:		

BLOCK TITLE Industrial Hygiene

MODULE TITLE Radiofrequency Radiation

TASK OBJECTIVE: Calculate hazard distances

CONDITIONS: Given the requirement to evaluate RFR sources

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f.(4)(c)7.	Calculate hazard distances	b	
	Define PELs using AFOSH STD 48-9		
	2. Calculate average power in watts for continuous		
	pulse emitters (Peak power x pulse width x		
	pulse repetition factor)		
	3. Calculate absolute gain (10 ^a where a = Gain in		
	decibels/10)		
	4. Calculate hazard distance = (3.28		
	ft/m)*((average power x gain)/40 x PI X PEL)) ^{1/2}		
	5. Recognize hazard distance calculations as		
	worst case estimates*		Υ

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:					

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.4, Sect.618

QTP REFERENCE: TBD				
TRAINING AND EVALUATION TECHNIQUES:				
EQUIPMENT: AFOSH STD 48-9, calculator				
ADDITIONAL SUPPORTING MATERIALS:				
SPECIFIC TECHNIQUES: NONE				
TRAINER REFERENCES:				
AFOSH STD 48-9				
NOTES:				

BLOCK TITLE Industrial Hygiene

MODULE TITLE Radiofrequency Radiation

TASK OBJECTIVE: Select the proper equipment

CONDITIONS: Given the requirement to measure parameters of an RFR source

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f.(4)(c)9.	Select proper measurement equipment	b	
	Identify emitter parameters		
	Identify available survey instruments (Narda		
	meters, probes, and accessories)		
	3. List the equipment commonly found at base		
	level BES shops (broadband isotropic radiation		
	monitors and probes)		
	4. Identify equipment available from AL's inventory		
	5. Select an instrument and appropriate probe that		
	will read above the PEL you will survey for		
	(average power) and then calculate the probe		
	burnout rating to assure no probe burnout can		
	occur if the reading stays below full scale of		
	meter*		Y
	6. Ensure probe is an electric field probe (for		
	routine measurements)		

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:						

PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol.4, Sect. 619
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: AL survey instrument inventory
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Emphasize the importance of selecting the proper instrument
TRAINER REFERENCES:
AFOSH STD 48-9 AL 89-023RC0111DRA
NOTES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Radiofrequency Radiation

TASK OBJECTIVE: Calculate the probe burnout threshold

CONDITIONS: Given a RFR source and a probe

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f.(4)(c)10.	Calculate probe burnout	b	
20.f.(4)(c)10.	 Describe the circumstances under which probe burnout can occur Define thin-film thermocouples and their susceptibility to high power density fields State reasons for calculating burnout of thin-film thermocouples Recognize that burnout threshold is equivalent to the maximum power density or the maximum meter reading you may have before burnout occurs Check the possibility of probe burnout before entering a radiation area Calculate duty factor (DF = pulse width x pulse 	b	
	repetition frequency) 7. Identify burnout rating listed on the probe 8. Identify correction factor for the frequency of the emitter (table on the probe handle) 9. Burnout Threshold = (duty factor x burnout rating)/correction factor)*		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

CDC REFERENCE: 90750 Vol.4, Sect.619

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Survey probe, radiation source, radiation area,

calculator

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: NONE

TRAINER REFERENCES:

AFOSH STD 48-9 AL 89-023RC0111DRA

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NOTES:		

BLOCK TITLE Industrial Hygiene

MODULE TITLE Radiofrequency Radiation

TASK OBJECTIVE: Evaluate ground based emitters

CONDITIONS: Given the requirement to survey ground based RFR sources

20.f.(4)(c)11. Ground based emitters b	SUB-TASK
a	
1. Visually inspect the site to determine if the main radiated beam is normally accessible to personnel, and approach the antenna from a safe distance 2. Stop antenna rotation 3. Determine the beam size, shape, character and PEL boundaries using the proper probe orientation (either keep the probe handle parallel to the beam axis, or perpendicular to the emitter surface) 4. Zero the meter/probe 4.1 Leave the RFR field 4.2 Shield the probe in metal containers or with the body 4.3 Zero meter 5. Probe the area immediately surrounding the antenna looking for hazardous side lobes and back scatter 6. Ask the operating personnel to accurately determine the actual power input value at the time the measurements were made 7. Conduct measurements with the system operating in "worst case" mode (highest peak power, highest duty factor, and narrowest beam configuration) 8. Record information correctly on AF Form 2759* 9. Determine if the system has adequate interlock mechanisms 10. Conduct a visual inspection to determine if the	Y

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f.(4)(c)11.	Ground based emitters	b	
а			
	RFR warning signs are appropriate and in sufficient numbers 11. Interview and observe activities of operations and maintenance personnel for their input into the potential health hazards from RFR emissions 12. Review T.O.'s for the presence and adequacy of warnings to personnel regarding RFR hazards, and determine if there are adequate SOPs for personnel protection*		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:	

CDC REFERENCE: N/A

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Survey instrument, AF Form 2759, Emitter TO's

ADDITIONAL SUPPORTING MATERIALS: Actual or simulated setting

SPECIFIC TECHNIQUES: Ensure trainees follow proper safety measures. Conduct training and evaluation in an actual or simulated setting.

TRAINER REFERENCES:

AFOSH STD 48-9

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NOTES:		

BLOCK TITLE Industrial Hygiene

MODULE TITLE Radiofrequency Radiation

TASK OBJECTIVE: Evaluate airborne RFR emitters

CONDITIONS: Given the requirement to survey airborne RFR sources

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f.(4)(c)11. b	Airborne Radiofrequency (RF) emitters	b	
	 Identify the mode that will create the "worst case" Ensure the antenna is properly positioned Request aircraft be positioned with ample clear area in front of the antenna Visually inspect the site to determine if the main radiated beam is normally accessible to personnel, and approach the antenna from a safe distance Determine the beam size, shape, character and PEL boundaries using the proper probe orientation (either keep the probe handle parallel to the beam axis, or perpendicular to the emitter surface) Zero the meter/probe Leave the RFR field Shield the probe in metal containers or with the body Zero meter Probe the area immediately surrounding the antenna looking for hazardous side lobes and back scatter Ask the operating personnel to accurately determine the actual power input value at the time the measurements were made Conduct measurements with the system operating in "worst case" mode (highest peak power, highest duty factor, and narrowest beam configuration) 		

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f.(4)(c)11.	Airborne Radiofrequency (RF) emitters	b	
b			
	10. Record information correctly on AF Form 2759*		Y
	Determine if the system has adequate interlock mechanisms		
	Conduct a visual inspection to determine if the RFR warning signs are appropriate and in sufficient numbers		
	Interview and observe activities of operations and maintenance personnel for their input into the potential health hazards from RFR emissions		
	14. Review T.O.'s for the presence and adequacy of warnings to personnel regarding RFR hazards, and determine if there are adequate		
	SOPs for personnel protection*		Y

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: N/A

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Survey instrument, AF Form 2759, Emitter TO's

ADDITIONAL SUPPORTING MATERIALS: Actual or simulated setting

SPECIFIC TECHNIQUES: Ensure trainees follow proper safety measures. Conduct training and evaluation in an actual or simulated setting.

TRAINER REFERENCES:						
AFOSH STD 48-9						
NOTES:						

BLOCK TITLE Industrial Hygiene

MODULE TITLE
Radiofrequency Radiation

TASK OBJECTIVE: Conduct interviews with exposed personnel and witnesses

CONDITIONS: Given a suspected overexposure to RFR

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
STS TASK II	STS TASK/SOD TASK TITEL	CODE	SUB-TASK
20.f.(4)(c)13.	Interview personnel	b	
а			
	 Ensure the exposed individual receives a physical exam Get signed narrative statements from the exposed individual and any witnesses Collect information from the individual and from emitter operators regarding the type of emitter the individual was exposed to* Collect information from the individual to estimate the distance from the emitter* Collect data from the individual and witnesses regarding the duration of exposure, and ensure 		Y Y
	the estimate is as close to reality as possible*		Y

* -	These mandator	y sub-tasks mu:	st be completed	d in order to	receive a "	GO"	for this tas	sk
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LOCAL REQUIREMENTS:

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.4, Sect.619
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: NONE
ADDITIONAL SUPPORTING MATERIALS: A simulated overexposure scenario
SPECIFIC TECHNIQUES: Conduct training and evaluation using a simulated scenario
TRAINER REFERENCES:
AFOSH STD 48-9 AFI 91-301
DoD Instruction 6055.11
NOTES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Radiofrequency Radiation

TASK OBJECTIVE: Conduct exposure calculations

CONDITIONS: Given a suspected overexposure to RFR

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

CTC TACK #	CTC TACK/CLID TACK TITLE	DDOE	MANDATODY
STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f.(4)(c)13.	Calculate exposure times	b	
b			
	Identify data from the interview (type of emitter		
	exposed to, distance from the emitter, and		
	duration of exposure)		
	2. Identify the emitter parameters (frequency,		
	antenna gain, etc.)		
	3. Calculate near and far field boundaries for the		
	emitter		
	3.1 NF distance in feet = ((Antenna		
	Length ² /(4 x wavelength)) x 30.48 ft/cm		
	3.2 FF distance in feet = 2 x (Antenna		
	Length) ² /wavelength x 30.48 ft/cm		
	4. Estimate the maximum power density for the		
	incident with the exposed individual		
	5. If the individual was exposed within the near		
	field of the emitter, calculate the power density		
	with the near field estimation (4 x		
	Power _{av})/Antenna Area		
	6. If the individual was exposed in the far field of		
	the emitter, calculate the power density with the		
	far field estimation (Power _{av} x Absolute Gain)/40		
	x PI x (Distance) ²		
	7. Calculate the power density if the emitter is far		
	field, scanning; PD = (Power _{av} x Absolute Gain		
	x beamwidth)/40 x PI x sector size x (Distance) ²		
	8. Calculate the power density average to		
	o. Calculate the power density average to		

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f.(4)(c)13.	Calculate exposure times	b	
b	•		
	estimate the exposure to the individual (Max measured power density x exposed time in seconds)/360 seconds		Y
	Identify overexposures*		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:	

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.4, Sect.619

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Calculator

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Conduct training and evaluation using a

simulated scenario

TRAINER REFERENCES:

AFOSH STD 48-9 Exposure to Radiofrequency Radiation DoD Instruction 6055.11

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NOTES:		

BLOCK TITLE Industrial Hygiene

MODULE TITLE Radiofrequency Radiation

TASK OBJECTIVE: Compare the exposed calculations to the standards

CONDITIONS: Given a suspected overexposure to an RFR source

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f.(4)(c)13.	Calculate compliance factors	b	
С			
	Compare the power density calculated to the PEL standard for the emitter's frequency range Compare the estimated exposure to the individual to the standard power density for the emitter's frequency range to determine if the		
	individual was overexposed*		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.4, Sect.619

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: NONE
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: NONE
TRAINER REFERENCES:
AFOSH STD 48-9 Exposure to Radiofrequency Radiation DoD Instruction 6055.11
NOTES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Radiofrequency Radiation

TASK OBJECTIVE: Determine the events of the incident

CONDITIONS: Given a suspected overexposure to an RFR source, and calculated exposures

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
20.f(4)(c)13.d	Reconstruct incident	b	
	 Arrange with the unit RPO to reconstruct the incident 1.1 Employ safety precautions to protect yourself and your instrument from harm 1.2 Ensure system is set up the same as it was during the incident Obtain measurements to determine the actual exposure levels and duration of exposure* 2.1 If the power density at the point of exposure is greater than your measuring instrument will record, make multiple measurements, plot data on semi-log paper and extrapolate to determine the actual exposure value 2.2 Take photographs of emitter and employees as they were at the time of exposure Prepare a report within 30 days identifying if an overexposure did occur and the exposed power density 		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol.4, Sect.619
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Survey instrument
ADDITIONAL SUPPORTING MATERIALS: A simulated overexposure
SPECIFIC TECHNIQUES: Conduct training and evaluation using a simulated overexposure incident
TRAINER REFERENCES:
AFOSH STD 48-9 Exposure to Radiofrequency Radiation DoD Instruction 6055.11
NOTES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Radiofrequency Radiation

TASK OBJECTIVE: Recommend actions which can be taken to prevent future incidents

CONDITIONS: Given an incident involving overexposure to a RFR source

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f.(4)(c)13.	Recommend corrective actions	b	
е			
	 Identify hazardous practices which contributed to the incident* Evaluate typical worker activities which may be safety hazards causing future incidents Recommend safety practices employees should employ to prevent future incidents Recommend employee training as appropriate for employees working near emitters 		Y

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:	

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.4, Sect.619

QTP REFERI	ENCE: TBD
TRAINING A	AND EVALUATION TECHNIQUES:
•	EQUIPMENT: NONE
	ADDITIONAL SUPPORTING MATERIALS: A simulated overexposure
	SPECIFIC TECHNIQUES: Conduct training and evaluation using a simulated overexposure incident
TRAINER RE	EFERENCES:
AFOSH STD	48-9
AFI 91-301 DoD Instruction	on 6055.11
NOTES:	

BLOCK TITLE Industrial Hygiene

MODULE TITLE Radiofrequency Radiation

TASK OBJECTIVE: Evaluate safe work practices around RFR emitters

CONDITIONS: Given the requirement to evaluate RFR sources

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
20.f.(4)(c)12.	Evaluate safe work practice	b	
	Review T.O.'s for the presence and adequacy of warnings to personnel regarding RFR hazards, and determine if there are adequate SOPs for personnel protection Observe the degree of caution exercised by workers around RFR		
	3. Evaluate work practices around RFR emitters*		Y !

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.4, Sect.618

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: TO's

ADDITIONAL SUPPORTING MATERIALS: An actual workplace setting

SPECIFIC TECHNIQUES: Conduct training and evaluation in an actual workplace setting

TRAINER REFERENCES:

AFOSH STD 48-9 AFI 91-301

NOTES:			

CONFINED SPACE MODULE

The Confined Space Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title
22.d.(2)	Oxygen deficient/enriched
22.d.(1)(a)	Determine LEL
22.d.(1)(b)	Determine UEL
22.e.(2)	PPE selection

BLOCK TITLE Industrial Hygiene

MODULE TITLE Confined Space

TASK OBJECTIVE: Determine the oxygen content of the atmosphere in a confined space

CONDITIONS: Given a confined space and a portable gas monitor

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

CTC TACV #	CTC TACK/CLID TACK TITLE	DDOE	MANDATODY
STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
22.d.(2)	Oxygen deficient/enriched	b	
	Use portable gas monitor according to		
	manufacturers instructions*		Υ
	1.1 Recharge and connect the battery pack		
	prior to operation		
	1.2 Check the battery level		
	1.3 Conduct operational checks IAW operators manual		
	1.4 Calibrate the monitor, as required		
	1.5 Identify meter response time IAW manufacturers specifications		
	1.6 Insert sampling lines or the monitor into the confined space		
	2. Identify the confined space as oxygen deficient/enriched if the monitor reading is less than 19.5% or greater than 23.5%		
	Record the oxygen content on AF Form 1024, Section 8		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: N/A

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Portable Gas Monitor

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Conduct hands on training and evaluation in a simulated or actual confined space

TRAINER REFERENCES:

AFOSH STD 91-25 TO 11H5-14-1 29 CFR 1910.146(b) 29 CFR 1910 App. B, C

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NOTES:		

BLOCK TITLE Industrial Hygiene

MODULE TITLE Confined Space

TASK OBJECTIVE: Determine the lower explosive limit (LEL) of the atmosphere in a confined space

CONDITIONS: Given a confined space and a portable gas monitor

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
22.d.(1)(a)	Determine LEL	b	
	Measure oxygen content prior to LEL to ensure		
	accurate instrument readings*		Y
	Use portable gas monitor according to		
	manufacturers instructions*		Y
	2.1 Recharge and connect the battery pack		
	prior to operation		
	2.2 Check the battery level		
	2.3 Conduct operational checks IAW		
	operators manual		
	2.4 Calibrate the monitor, as required		
	2.5 Identify meter response time IAW		
	manufacturers specifications		
	2.6 Insert sampling lines or the monitor into		
	the confined space		
	3. Record the LEL on AF Form 1024, Section 8		

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

PREREQUISITES: NONE
CDC REFERENCE: N/A
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Portable Gas Monitor
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Conduct hands on training and evaluation in a simulated or actual confined space
TRAINER REFERENCES:
TO 11H5-2-11 TO 11H5-14-1 AFOSH STD 91-25
NOTES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Confined Space

TASK OBJECTIVE: Determine the upper explosive limit (UEL) of the atmosphere in a confined space

CONDITIONS: Given a confined space and a portable gas monitor

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
22.d.(1)(b)	Determine UEL	b	
	Use portable gas monitor according to manufacturers instructions* Recharge and connect the battery pack prior to operation Check the battery level Conduct operational checks IAW operators manual Calibrate the monitor, as required Identify meter response time IAW manufacturers specifications Insert sampling lines or the monitor into the confined space		Y

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE				
CDC REFERENCE: N/A				
QTP REFERENCE: TBD				
TRAINING AND EVALUATION TECHNIQUES:				
EQUIPMENT: Portable Gas Monitor				
ADDITIONAL SUPPORTING MATERIALS: NONE				
SPECIFIC TECHNIQUES: Conduct hands on training and evaluation in a simulated or actual confined space				
TRAINER REFERENCES:				
AFOSH STD 91-25 NIOSH Pocket Guide to Chemical Hazards				
NOTES:				

BLOCK TITLE Industrial Hygiene

MODULE TITLE Confined Space

TASK OBJECTIVE: Identify the appropriate PPE for a confined space entry

CONDITIONS: Given the type and extent of hazards within a confined space

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
		CODE	SUB-TASK
22.e.(2)	PPE selection	b	
	 Identify the site specific hazard(s) Identify positive pressure SCBA or supplied air respirators with escape SCBA for use in IDLH atmospheres* 		Y
	 3. Identify harnesses and safety lines based on the size and number of personnel* 4. Select skin protection based on the type of hazard* 		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: N/A

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: NONE

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Training and evaluation may be

knowledge based or hands on

TRAINER REFERENCES:

AFOSH STD 91-25 AFOSH STD 91-31 TO 00-25-235 AFI 91-301 AFOSH STD 48-1 29 CFR 1910.146(f)(13) 29 CFR 1910.146(d)(4)(iv)

NOTES:		

CHEMICAL EXPOSURES SURVEILLANCE MODULE

The Chemical Exposures Surveillance Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title	
20.e.(2)(b)1.	Evaluate work practices	
20.e.(1)(d)1.	Identify chemical composition	
20.e.(1)(a)2.	Verify chemical usage	
20.e.(1)(d)2.	Determine potential exposure routes	
20.e.(1)(d)3.	Estimate potential health risks	
20.e.(1)(b)	Collect bulk chemical samples	
20.e.(2)(a)9.	Calculate 8 hour time weighted average (TWA)	
20.e.(2)(a)12.a	Interpret 8 hour time weighted exposures	
20.e.(2)(a)12.b	Interpret short term exposure limit (STEL) values	
20.e.(2)(a)12.c	Interpret ceiling limits	

BLOCK TITLE Industrial Hygiene

MODULE TITLE Chemical Exposures Surveillance

TASK OBJECTIVE: Determine which work practices pose ingestion, absorption, and skin contact hazards

CONDITIONS: Given a worksite with hazardous substances

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.e.(2)(b)1.	Evaluate work practices	b	
	 Review existing case file Interview shop personnel to determine potentially hazardous work practices Develop a task/process description of workplace hazards Research MSDSs to determine potentially 		
	 hazardous substances 5. Determine which workplace hazards have ingestion, absorption, and skin contact routes of exposure 6. Estimate the potential health risks associated with these hazards* 7. Identify substitute work practices to reduce the risk of ingestion, absorption and skin contact 		Y

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol.2, Sect.206
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: MSDSs
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Conduct training and evaluation using scenarios or an actual workplace setting
TRAINER REFERENCES:
AFOSH STD 48-8
NOTES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Chemical Exposures Surveillance

TASK OBJECTIVE: Identify and document the composition of a hazardous material on AF Form 2761, or equivalent

CONDITIONS: Given the potential for worker exposure to a chemical hazard

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
20.e.(1)(d)1.	Identify chemical composition	b	
	 Identify the composition using an MSDS, HMIS, container labels, or other documentation Complete the "Materials Nomenclature" section of AF Form 2761 		

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.2, Sect.207

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: AF Form 2761s, MSDS, container labels, other appropriate documentation

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Conduct training and evaluation using scenarios or an actual workplace setting

TRAINER REFERENCES:

AFOSH STD 48-17 AFI 48-119 NIOSH Pocket Guide to Chemical Hazards

NOTES:		

BLOCK TITLE Industrial Hygiene

MODULE TITLE Chemical Exposures Surveillance

TASK OBJECTIVE: Verify that reported chemical usage quantities are accurate

CONDITIONS: Given a worksite containing hazardous materials and chemical usage reports

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.e.(1)(a)2.	Verify chemical usage	b	
	 Compare the issue total from the appropriate hazardous material report to the usage stated on AF Form 2761 Validate issue quantities against Issue Exception Code documentation using a hazardous material report Conduct a walkthrough inventory of work areas to verify that on-hand quantities do not exceed the difference between the usage stated on the AF Form 2761 and the issue quantity on the hazardous material report 		

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol.2, Sect.222
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Hazardous Material Reports, IEX Code documentation, AF Form 2761
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Conduct training and evaluation using scenarios or an actual workplace setting
TRAINER REFERENCES:
AFI 48-119 AFI 48-101 AFOSH STD 48-17
NOTES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Chemical Exposures Surveillance

TASK OBJECTIVE: Determine and document the potential routes of exposure for a chemical hazard on AF Form 2761, or equivalent

CONDITIONS: Given a worksite containing hazardous materials, and reference documents

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
20.e.(1)(d)2.	Determine potential exposure routes	b	
	 Determine route of entry using applicable reference materials* Document potential hazard as required 		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:	

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.2, Sect. 207

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: AF Form 2761, MSDSs, and/or other appropriate reference materials

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Conduct training and evaluation using scenarios or an actual workplace setting

TRAINER REFERENCES:

AFOSH STD 48-17 AFOSH STD 48-8 AFI 48-101 AFI 48-119

NOTES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Chemical Exposures Surveillance

TASK OBJECTIVE: Estimate and document the potential health risks associated with a chemical hazard on AF Form 2761, or equivalent

CONDITIONS: Given a worksite containing hazardous materials and reference documents

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.e.(1)(d)3.	Estimate potential health risks	b	
	 Compare potential routes of exposure to actual conditions Document potential hazard as required 		

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.2, Sect.207

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: AF Form 2761

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Conduct training and evaluation using scenarios or an actual workplace setting

TRAINER	REFERENCES:
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AFOSH STD 48-22 AFI 48-101

AFI 48-103

AFI 48-119

AFI 91-301

NOTES:		

BLOCK TITLE Industrial Hygiene

MODULE TITLE Chemical Exposures Surveillance

TASK OBJECTIVE: Identify the steps to collect bulk samples

CONDITIONS: Given a scenario with chemicals in the workplace

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.e.(1)(b)	Collect bulk chemical samples	b	
	 Identify the probable substance(s) being sampled Select appropriate PPE based on the substance(s) Determine the number of samples based on the size of the sample area and the uniformity of concentration levels Determine the detailed sampling instructions for the substance(s) using the AL Sampling Guide Collect sample Prepare the sample for shipment Decontaminate or dispose of PPE and sampling equipment as required Prepare documentation for laboratory analysis 		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task.

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol.2, Sect.237
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Appropriate PPE, AL sampling Guide, sample containers, sampling equipment, shipping materials, decontamination equipment, appropriate documentation
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: NONE
TRAINER REFERENCES:
AL Sampling Guide AFOSH STD 48-8 AFI 48-119
NOTES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Chemical Exposures Surveillance

TASK OBJECTIVE: Calculate the 8 hour TWA concentration level of a hazardous chemical

CONDITIONS: Given the requirement to evaluate hazardous chemical inhalation risks at a worksite, and air sampling results

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

			1
STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.e.(2)(a)9.	Calculate 8 hour time weighted average	b	
	(TWA)		
	 Determine concentration levels (C) of a given substance based on air sampling results Determine the period(s) of time in hours (t) at each concentration level Calculate the 8 hour TWA using the following formula: TWA = [(C₁ x t₁) + (C₂ x t₂) + + (C_n 		
	x t _n)] / 8*		Υ

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.2, Sect.242

QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: NONE
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: NONE
TRAINER REFERENCES:
AFOSH STD 48-8 AFOSH STD 48-22 29 CFR 1910.1000(d) ACGIH TLV Booklet
NOTES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Chemical Exposures Surveillance

TASK OBJECTIVE: Interpret 8 hour time weighted average sampling results

CONDITIONS: Given 8 hour TWA sampling results from a worksite with hazardous chemicals

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.e.(2)(a)12.	Interpret 8 hour time weighted exposures	b	
а			
	Define Upper Confidence Limit (UCL)		
	2. Determine the OEL for the substance by		
	selecting the most stringent of ACGIH TLVs,		
	OSHA PELs, or AFOSH STD exposure limits		
	3. Determine if the 8 hour TWA could exceed the		
	OEL (possible over-exposure)*		Y
	3.1 Calculate the UCL		
	3.1.1 Determine the Sampling and		
	Analytical Error (SAE) using the		
	AL Sampling Guide		
	3.1.2 Calculate UCL using the		
	following formula: UCL = TWA +		
	(OEL x SAE)		
	3.2 Compare the 8 hour TWA to the UCL to		
	determine if the exposure could exceed		
	the OEL		

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

BLOCK TITLE Industrial Hygiene

MODULE TITLE Chemical Exposures Surveillance

TASK OBJECTIVE: Interpret STEL sampling results

CONDITIONS: Given STEL (15-30 minute) sampling results from a worksite with hazardous chemicals

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
20.e(2)(a)12. b	Interpret short term exposure limit (STEL) values	b	
	Determine the STEL-OEL for the substance by selecting the most stringent of ACGIH TLVs, OSHA PELs, or AFOSH STD exposure limits Determine if the actual exposure could exceed the STEL-OEL (possible over-exposure)* 2.1Calculate the Upper Confidence Limit (UCL) 2.1.1 Determine the Sampling and Analytical Error (SAE) using the AL Sampling Guide 2.1.2 Calculate UCL using the following formula: UCL = actual exposure level + (STEL-OEL x SAE) 2.2Compare the actual exposure level to the UCL to determine if the exposure could exceed the STEL-OEL		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol.2, Sect.243
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: AL Sampling Guide
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: NONE
TRAINER REFERENCES
TRAINER REFERENCES:
AL Sampling Guide NIOSH Manual of Analytical Methods
ACGIH TLV Booklet
NOTES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Chemical Exposures Surveillance

TASK OBJECTIVE: Interpret ceiling limits based on sampling results

CONDITIONS: Given actual immediate exposure level sampling results from a worksite with hazardous chemicals

		1	T
STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.e(2)(a)12.c	Interpret ceiling limits	b	
	Determine the applicable ceiling limit for the		
	substance by selecting the most stringent of		
	ACGIH ceiling limits, OSHA ceiling limits, or		
	AFOSH STD ceiling limits		
	2. Determine if the actual exposure could exceed		
	the ceiling limit (possible overexposure)*		Υ
	2.1 Calculate the Upper Confidence Limit		
	(UCL)		
	2.1.1 Determine the Sampling and		
	Analytical Error (SAE) using the		
	AL Sampling Guide		
	2.1.2 Calculate UCL using the following		
	formula: UCL = actual exposure		
	level + (ceiling limit x SAE)		
	2.2 Compare the actual exposure level to		
	the UCL to determine if the exposure		
	could exceed the ceiling limit		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

CDC REFERENCE: 90750 Vol.2, Sect.243

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: AL Sampling Guide

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: NONE

TRAINER REFERENCES:

AL Sampling Guide NIOSH Manual of Analytical Methods ACGIH TLV Booklet

Trainer's Guide	
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NOTES:		

AIR SURVEILLANCE MODULE

The Air Surveillance Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title	
20.e.(2)(a)2.	Develop a sampling strategy	
20.e.(2)(a)3.a.	Collection method	
20.e.(2)(a)3.b	Sampling rates/volumes	
•		
20.e.(2)(a)4.a.	Calibrate air sampling pumps	
20.e.(2)(a)5.	Collect area air samples	
20.e.(2)(a)6.	Collect breathing zone samples	

BLOCK TITLE Industrial Hygiene

MODULE TITLE Air Surveillance

TASK OBJECTIVE: Develop a site-specific strategy to conduct air sampling at an industrial worksite

CONDITIONS: Given the requirement to evaluate inhalation risks at a worksite with known hazardous chemicals

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able name parts, tools, and simple facts about the task. (Proficiency level "a")

	T	ı	1
STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.e.(2)(a)2.	Develop a sampling strategy	а	
	Define sampling terminology		
	1.1 Define breathing zone sample		
	1.2 Define area air sample		
	1.3 Define compliance sample		
	1.4 Define "full period single sample"		
	measurement		
	1.5 Define "full period consecutive sample"		
	measurement		
	1.6 Define "partial period consecutive		
	sample" measurement		
	1.7 Define "single-batch process sample"		
	measurement		
	1.8 Define "grab sample" measurement		
	1.9 Define "ceiling sample" measurement		
	2. Determine the number of employees required		
	for adequate sampling*		Υ
	2.1 Select the maximum risk employee for		
	each work operation based on proximity		
	and length of exposure to the		
	hazardous substance		
	2.2 Identify random individuals in each		
	homogeneous work group where a max.		
	risk employee cannot be identified		
	2.2.1 Determine the number of		
	employees to sample using the		
	tables in NIOSH 77-173		
	3. Determine the sample device location*		Y
	3.1 Determine worksite specific factors		

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
20.e.(2)(a)2.	Develop a sampling strategy	а	
	affecting sample device location 3.1.1 Identify the type of sample 3.1.2 Identify types of work operations and worker activity level 3.2 Select sample device location based on worksite specific factors and compliance sampling requirements 4. Determine the collection method 5. Determine the sampling rates and volumes using the AL Sampling Guide 6. Select the measurement period based on substance specific requirements, type of collection method, availability of supplies and personnel, required sampling rates and volumes, and required number of total samples 7. Determine the sampling frequency* 7.1 Determine the sampling frequency for specific substances using the CFR 7.2 Determine the sampling frequency for substances exceeding the standard		Υ

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

CDC REFERENCE: 90750 Vol.2, Sect. 229, 235, 236

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: AL Sampling Guide, NIOSH 77-173, applicable CFR

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Conduct training and evaluation using scenarios or actual industrial worksites

TRAINER REFERENCES:
AL Sampling Guide OSHA Technical Manual Ch.1
NOTES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Air Surveillance

TASK OBJECTIVE: Determine the appropriate air sample collection device

CONDITIONS: Given the requirement to evaluate inhalation risks at a worksite with known hazardous chemicals, and the AL Sampling Guide

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
20.e.(2)(a)3.a.	Collection method	b	
	Determine the recommended sampling method using the first four letters of the collection method code in the AL Sampling Guide* 1.1 Identify solid sorbents, including charcoal tubes and silica gel tubes 1.2 Identify liquid sorbents, including midget impingers and midget bubblers 1.3 Identify filters, including membrane filters and glass fiber filters 2. Contact AL if collection method is not listed in the Guide		Y

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:

PREREQUISITES: NONE CDC REFERENCE: 90750 Vol.2, Sect.237 QTP REFERENCE: TBD TRAINING AND EVALUATION TECHNIQUES: EQUIPMENT: AL Sampling Guide ADDITIONAL SUPPORTING MATERIALS: NONE SPECIFIC TECHNIQUES: NONE TRAINER REFERENCES: AL Sampling Guide 29 CFR 1910 Subpart Z OSHA Technical Manual Ch.1A NOTES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Air Surveillance

TASK OBJECTIVE: Determine the appropriate air sampling rate and volume

CONDITIONS: Given the requirement to evaluate inhalation risks at a worksite with known hazardous chemicals

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
20.e.(2)(a)3.b	Sampling rates/volumes		
	Determine the substance specific recommended sampling rates/volumes using the AL Sampling Guide* 1.1 Identify minimum and maximum flow rate 1.2 Identify recommended volume (usually a range) Determine the minimum sampling time by dividing the lowest recommended volume by the maximum flow rate Determine the maximum sampling time by dividing the highest recommended volume by the minimum flow rate		Y

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Air Surveillance

TASK OBJECTIVE: Calibrate air sampling pumps

CONDITIONS: Given various air sampling pumps, a frictionless piston, an electronic bubble flow meter, and the requirement to conduct pre and post calibration using a primary standard

	ı			1
STS TASK #		STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
				SUB-TASK
20.e.(2)(a)4.a.	Calibrate	e air sampling pumps	Ь	
	1. Calibra	ate sampling pump using the frictionless		
	piston*	•		Υ
	1.1	Turn on and run pump for 5 minutes		
		before actual calibration		
	1.2	Identify the components of the		
		frictionless piston, including the burette		
		stand, burette, beaker containing a soap		
		solution, and a petri dish		
	1.3	Identify the appropriate size burette		
	1.4	Clean and rinse the inside of the burette		
		with soap solution, then immediately		
		turn upside down and clamp into place		
		1" above petri dish		
	1.5	Attach the outlet end of the filter media		
		to the inlet valve on the pump with a		
		length of Tygon tubing		
	1.6	Attach the inlet end of the filter media to		
		the top of the burette using another		
		piece of Tygon tubing		
	1.7	Fill the petri dish with the soap solution		
	1.8	Turn the pump on		
	1.9	Raise the petri dish until the end of the		
	burette is submerged, forming a bubble,			
		then quickly lower the dish		
	1.10	Adjust the entire assembly until bubbles		
		regularly form and rise to the calibrated		
		mark		
	1.11	Select a specific flow rate to calibrate		

STS TASK #	STS TASK/SUB-TASK TITLE		MANDATORY SUB-TASK
		CODE	SUD-TASK
20.e.(2)(a)4.a.	Calibrate air sampling pumps	b	
	the pump		
	1.12 Calculate the proper time for a bubble to		
	rise at the selected setting using the		
	following formula: flow rate =		
	volume/time		
	1.13 Form a bubble and time it from the 0 mL		
	to the calibrated mark		
	1.14 Determine if the actual time is within +		
	or - 5% of the proper time		
	1.15 Adjust the pump if necessary by turning		
	the airflow adjustment screw		
	1.16 Repeat the timing three times at the		
	new setting, then average the results		
	1.17 Repeat the timing if the average time is		
	not within + or - 5% of the proper time		
	Calibrate an air sampling pump using an		
	electronic bubble flowmeter, according to		
	manufacturers instructions*		Υ
	3. Record calibration data on appropriate form		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

CDC REFERENCE: 90750 Vol.2, Sect.229, 238

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Various sampling pumps, a frictionless piston, and an

electronic bubble flow meter

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Conduct hands on training and evaluation

TRAINER REFERENCES

TR 92-0016 OSHA Technical Manual Ch. 1 Gilibrator Instruction Manual

NOTES:		

BLOCK TITLE Industrial Hygiene

MODULE TITLE Air Surveillance

TASK OBJECTIVE: Collect area air samples

CONDITIONS: Given the requirement to evaluate inhalation risks at a worksite with known hazardous chemicals, and a calibrated air sampling device

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.e.(2)(a)5.	Collect area air samples	b	
	 Identify the purpose of conducting area air sampling Determine sampling locations Assemble sampling train Place the sampling pump at breathing zone height, in a location that approximates max. risk worker exposure levels* Operate the pump using manufacturers instructions* Turn on pump Record the starting time Replace the media as necessary Turn off pump at the end of the sampling period and record the time Remove the media Prepare samples for shipment Seal the media with the original plugs in accordance with AL Sampling Guide Place a tamper proof label on the container, ensuring that the media cannot be opened without tearing the label Place enough cushioning around the container to prevent breakage from a six foot drop Insert a completed AF Form 2750 into the package prior to sealing Include a chain of custody form with the 		Y
	2.2	L	1

STS TASK #	STS TASK/SUB-TASK TITLE		MANDATORY
		CODE	SUB-TASK
20.e.(2)(a)5.	Collect area air samples	b	
	shipment to identify each person who had control of the samples		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:						

CDC REFERENCE: 90750 Vol.2, Sect.229,235

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: AL Sampling Guide, air sampling device with appropriate media, shipping labels, chain of custody documentation, and AF Form 2750

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Conduct hands on training and evaluation

TRAINER REFERENCES:

AL Sampling Guide AFOSH STD 48-8 AFI 48-119 TR 92-0016 OSHA Technical Manual

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NOTES:		

BLOCK TITLE Industrial Hygiene

MODULE TITLE Air Surveillance

TASK OBJECTIVE: Collect personal air samples

CONDITIONS: Given the requirement to evaluate inhalation risks at a worksite with known hazardous chemicals, and a calibrated personal air sampling device

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.e.(2)(a)6.	Collect breathing zone samples	b	
	 Identify the purpose of breathing zone samples Identify the purpose of screening samples Identify the purpose of compliance samples IAW OSHA Technical Manual Identify workers for sampling Brief workers on the purpose and procedures for sampling Determine the type of media using the AL Sampling Guide Obtain and document environmental conditions measurements Place sampling pump on personnel* Assemble sample train in the sample area Prepare blank sample Attach the sampler to shirt collar or shoulder area on the opposite side of the body from the hand of preference Ensure the media is in proper sampling position and the inlet port faces outward Briefly turn on the pump to verify proper operation Attach the pump to the belt or pants on the same side of the body as the sampler Tape or pin the tubing to clothing to permit ease of movement 		Y
	7. Operate the pump*		Υ

STS TASK #		STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
20.e.(2)(a)6.	Collect b	oreathing zone samples	b	
	7.1	Turn on pump and record starting time		
	7.2	Replace the media as necessary		
	7.3	Turn off pump at the end of the		
		sampling period and record the time		
	7.4	Remove the media		
	8. Prepa	re samples for shipment		
	8.1	Seal the media with the original plugs in		
		accordance with AL Sampling Guide		
	8.2	Place a tamper proof label, ensuring		
		that the media cannot be opened		
		without tearing the label		
	8.3	Place cushioning around the cassette to		
		prevent breakage from a six foot drop		
	8.4	Insert a completed AF Form 2750 into		
		the package prior to sealing		
	8.5	Include a chain of custody form with the		
		shipment to identify each person who		
		had control of the samples		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

CDC REFERENCE: 90750 Vol.2, Sect.229, 235-240

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: AL Sampling Guide, Personal air sampling device with appropriate media, shipping labels, AF Form 2750 and chain of custody documentation

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Conduct hands on training and evaluation

TRAINER REFERENCES:

AL Sampling Guide AFOSH STD 48-8 TR 92-0016 OSHA Technical Manual Ch. 1

NOTES:		

VENTILATION MODULE

The Ventilation Module consists of the following Specialty Training Standard (STS)

Tasks:

STS Number	Task Title
20.e.(3)(a)2.c.	Calculate dilution ventilation requirements
20.e.(3)(a)2.e.	Perform dilution ventilation surveys
20.e.(3)(a)3.d	Perform initial, baseline, and routine industrial ventilation surveys using the face velocity method
20.e.(3)(a)3.g	Perform routine static pressure check

BLOCK TITLE Industrial Hygiene

MODULE TITLE Ventilation

TASK OBJECTIVE: Calculate the ventilation rate required to dilute hazardous chemical vapors

CONDITIONS: Given an industrial worksite with potentially hazardous chemicals

			T
STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.e.(3)(a)2.c.	Calculate dilution ventilation requirements	b	
	1. Determine the ventilation rate required to		
	maintain the atmospheric concentration of a		
	hazardous material at acceptable levels*		Y
	1.1 Identify the hazardous material and its		
	OEL/acceptable concentration (C) in		
	ppm		
	 1.2 Identify the specific gravity (S), 		
	molecular weight (MW), and vapor		
	generation rate in gal/hr for the liquid		
	1.3 Determine the "K" factor using		
	subjective analysis based on principles		
	described in ACGIH Industrial		
	<u>Ventilation</u>		
	1.4 Calculate the ventilation rate (Q)		
	required to maintain the vapor		
	concentration at the OEL using the		
	following formula: Q = (53.8 x K x		
	gal/hr x S x 10 ⁶) / (C x MW)		
	Determine the ventilation rate required to		
	maintain the atmospheric concentration of		
	several hazardous materials at acceptable		
	levels (below their OELs) by adding the		
	ventilation rates required for each substance*		Υ

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol.3, Sect.405
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: NONE
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Verify the trainees calculations are based on the selected "k" factor
TRAINER REFERENCES:
AFOSH STD 48-2 ACGIH Industrial Ventilation, Ch.2
NOTES:

BLOCK TITLE Industrial Hygiene

MODULE TITLE Ventilation

TASK OBJECTIVE: Perform a survey to verify the effectiveness of an existing dilution ventilation system

CONDITIONS: Given an industrial worksite with potentially hazardous chemicals, a velometer, and an air velocity meter, and dilution ventilation calculations

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATODV
515 1 ASK #	515 IASK/SUD-IASK IIILE		MANDATORY
		CODE	SUB-TASK
20.e.(3)(a)2.e.	Perform dilution ventilation surveys	b	
	Calculate actual air flow in a room using a		
	velometer*		Y
	1.1 Assemble the velometer IAW		
	manufacturers directions		
	1.2 Adjust the velometer to ensure it reads		
	zero while facing it away from any air		
	currents		
	1.3 Set the range selector to the highest		
	flow reading and place over the duct		
	opening		
	1.4 Adjust the range selector IAW the		
	manufacturers directions until a proper		
	reading is obtained		
	1.5 Determine temperature and pressure		
	correction factors IAW manufacturers		
	directions		
	2. Measure the flow rate at the face of the duct		
	using an air velocity meter*		Y
	2.1 Identify the number and location of		
	measurements to be collected		
	2.2 Determine and enter the size and shape		
	of the duct into the meter		
	2.3 Collect the flow rate readings		
	3. Determine if the ventilation system provides		
	adequate dilution by comparing the actual flow		
	rate to the required ventilation rate*		Y
	Tate to the required verification rate		<u>'</u>

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

CDC REFERENCE: 90750 Vol.3, Sect.405

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Velometer, air velocity meter

ADDITIONAL SUPPORTING MATERIALS: Functional dilution

ventilation system

SPECIFIC TECHNIQUES: Conduct hands on training and

evaluation in an actual workplace setting

TRAINER REFERENCES:

AFOSH STD 48-2

Alnor Balometer Air Balancing Instrument Owner's Manual

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NOTES:		

BLOCK TITLE Industrial Hygiene

MODULE TITLE Ventilation

TASK OBJECTIVE: Perform initial, baseline, and routine surveys using the face velocity method, to verify the effectiveness of a local exhaust ventilation system

CONDITIONS: Given an industrial worksite with known hazardous chemicals, a local exhaust ventilation system, the system design specifications, and an air velocity meter

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
SIS IIISK II	SIS THOR/SOB THOR TITLE	CODE	SUB-TASK
20.e.(3)(a)3.d	Perform initial, baseline, and routine	b	SCB TABLE
20.6.(3)(a)3.u	industrial ventilation surveys using the face		
	• • •		
	velocity method	 	
	Measure the velocity at the face of an air supply		V
	duct*		Y
	1.1 Identify the proper probe for measuring		
	an air supply duct		
	1.2 Identify the number and location of		
	measurements to be collected		
	1.3 Collect the velocity measurements		
	1.4 Record the location and measured		
	velocity on AF Form 2764		V
	2. Measure the velocity at the face of the hood*		Y
	2.1 Determine the area of the face of the hood		
	2.2 Identify the proper probe for measuring		
	the velocity at the face of the hood		
	2.3 Identify the number and location of		
	measurements to be collected		
	2.4 Collect the velocity measurements		
	2.5 Record the location and measured		
	velocity on AF Form 2764		
	Measure the velocity across an open tank		
	exhausted by a slot hood*		Y
	3.1 Turn on the slot hood fan and adjust the		
	slot opening to obtain a velocity of		
	2,000 fpm at the slot face		

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.e.(3)(a)3.d	Perform initial, baseline, and routine	b	
	industrial ventilation surveys using the face		
	velocity method		
	3.2 Identify the proper probe for measuring		
	the velocity at the slot hood on a tank		
	3.3 Place the diffuser probe into the 1250-		
	2500 fpm range selector		
	3.4 Identify the number and location of		
	measurements to be collected		
	3.5 Collect the velocity measurements		
	3.6 Record the location and measured		
	velocity on AF Form 2764		
	Convert measurements to Standard		
	Temperature and Pressure (STP) if using the		
	Swinging Vane Anemometer		
	5. Compute the density factor, Static pressure at		
	STP, Velocity at STP, duct area, and Flow at STP		
	6. Calculate the volume in cfm (Q) by multiplying		
	the average velocity by the duct area*		Y
	7. Determine if the system is operating within		·
	tolerance (within 10% of the Q factor identified		
	in the system design specifications)*		Y
	8. Verify that dust or dirt particles fall into the hood		'
	in the direction of the air flow for grinding, dry		
	polishing, or buffing operations		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:	

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.3, Sect.409

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Air velocity meter, ventilation system design specifications, AF Form 2764

ADDITIONAL SUPPORTING MATERIALS: Functional local exhaust ventilation system

SPECIFIC TECHNIQUES: Conduct hands on training and evaluation in an actual industrial worksite

TRAINER REFERENCES:

AFI 40-209 AFOSH STD 48-2 29 CFR 1910.94

NOTES:			

PROCESS SOURCE SHEET # IH 13-4

BLOCK TITLE Industrial Hygiene

MODULE TITLE Ventilation

TASK OBJECTIVE: Perform a routine static pressure check of a local exhaust ventilation system

CONDITIONS: Given a local exhaust ventilation system, the system design specifications, and an air velocity meter

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.e.(3)(a)3.g	Perform routine static pressure check	b	
	Perform an equipment check on an air velocity		
	meter		
	1.1 Set the unit to read in inches of water		
	1.2 Attach the positive pressure tube and		
	negative pressure tube to the pressure		
	measurement ports		
	1.3 Attach the suction cup or pitot-static		
	tube to the end of the positive pressure		
	tube		
	Operate the air velocity meter*		Y
	2.1 Turn the air velocity meter on and check		
	the batteries		
	2.2 Place the suction cup over a small,		
	smooth edged hole in the duct, or place		
	the pitot-static tube into the duct, with		
	the tube pointed into the airflow		
	2.3 Hang the negative pressure tube		
	outside the duct in ambient air		
	conditions		
	3. Collect and record the readings in inches of		Y
	water*		
	4. Compare the static pressure readings to the		Y
	system design specifications*		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol.3,Sect.400, 410
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Air velocity meter
ADDITIONAL SUPPORTING MATERIALS: Functional local exhaust ventilation system
SPECIFIC TECHNIQUES: Conduct hands on training and evaluation in an actual industrial worksite
TRAINER REFERENCES:
AFOSH STD 48-2 VelociCalc Air Velocity Meters-Operation and Service Manual
NOTES:

CONTROL MEASURES MODULE

The Control Measures Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title
20.e.(2)(b)3.	Evaluate use and availability of emergency equipment
20.f.(2)(e)3.c.	Initiate and complete AF Form 2758

PROCESS SOURCE SHEET # IH 14-1

BLOCK TITLE Industrial Hygiene

MODULE TITLE Control Measures

TASK OBJECTIVE: Evaluate the use and availability of equipment used during chemical ingestion, absorption or skin contact emergencies

CONDITIONS: Given a workplace with chemical ingestion, absorption and skin contact hazards and emergency equipment

STS TASK #	STS TASK/SUB-TASK TITLE	PROF COD E	MANDATO RY SUB-TASK
20.e.(2)(b)3.	Evaluate use and availability of emergency equipment	b	
	 Identify the ingestion, absorption, and skin contact hazards present in the workplace Research MSDSs to determine the specific emergency equipment required for each ingestion, absorption, and skin contact hazard in the workplace Verify the presence of required emergency equipment Verify the presence of non-specific emergency equipment, including an emergency eye wash, emergency shower, and first-aid kit Determine if emergency equipment is in a known, easily accessible location Verify that workers are trained on the use of specific emergency equipment Verify that emergency equipment has current maintenance, calibration and expiration dates as required Verify that emergency phone numbers are posted and correct 		Y Y Y Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task.

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol.2, Sect.213-214, 218-219
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Generic and substance specific emergency equipment
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: NONE
TRAINER REFERENCES:
AFOSH STD 48-1 AFI 91-301
NOTES:

PROCESS SOURCE SHEET # IH 14-2

BLOCK TITLE Industrial Hygiene

MODULE TITLE Control Measures

TASK OBJECTIVE: Document hazards and controls using AF Form 2758

CONDITIONS: Given a hazardous environment with known sources and control measures

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.f.(2)(e)3.c.	Initiate and complete AF Form 2758	b	
	Prepare a written description of the hazard		
	2. Prepare a written evaluation of the hazard*		Y
	2.1 List applicable standards		
	2.2 Describe hazards that exceed		
	standards		
	3. Prepare a written description of the controls*		Y
	3.1 Describe existing or recommended		
	material substitution controls		
	3.2 Describe existing or recommended		
	process substitution controls		
	3.3 Describe existing or recommended		
	engineering controls		
	3.4 Describe existing or recommended		
	administrative controls		
	3.5 Describe existing or recommended		
	protective equipment controls		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task.

LOCAL REQUIREMENTS:	

PREREQUISITES: NONE

CDC REFERENCE: N/A

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: AF Form 2758

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: NONE

ΓRAINER REFERENCES:		
NONE		
NOTES:		

USING PERSONAL PROTECTIVE EQUIPMENT MODULE

The Using Personal Protective Equipment Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title
20.e.(3)(b)1.e	Advise shop supervisors on ordering respiratory protection devices
20.e.(3)(b)2.a	Select appropriate eye protection
20.e.(3)(b)2.b	Select appropriate skin protection
20.e.(3)(b)1.c	Recommend proper use, care, and maintenance of respirators
20.e.(2)(b)2.	Evaluate adequacy, use, and maintenance of PPE

PROCESS SOURCE SHEET # IH 15-1

BLOCK TITLE Industrial Hygiene

MODULE TITLE Using Personal Protective Equipment

TASK OBJECTIVE: Explain respiratory protective device ordering procedures and requirements to shop supervisors

CONDITIONS: Given an industrial worksite requiring a Respiratory Protection Program

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
20.e.(3)(b)1.e	Advise shop supervisors on ordering	b	SCB TASK
	1. Instruct supervisors to use the Paperless Ordering System (POPS) for respirator purchases 2. Explain the procedures and AF requirement for NIOSH certification 3. Explain local inventory control procedures 4. Instruct supervisors to conduct periodic surveillance to ensure workers properly use and maintain respirators		Y
	5. Instruct supervisors to notify BES of changes in the work process		Y
	Instruct supervisors to develop a workplace OI for respirator protection Instruct the supervisor to continue to consult BES for future respirator purchases		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task.

LOCAL REQUIREMENTS:
PREREQUISITES: Conduct Technical Training (F2)
CDC REFERENCE: N/A
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: NONE
ADDITIONAL SUPPORTING MATERIALS: Classroom/training area
SPECIFIC TECHNIQUES: Evaluate based on overall organization, presentation skills and subject matter content, as they apply to the sub-tasks.
TRAINER REFERENCES:
AFOSH STD 48-1
AFOSH STD 48-8 AFI 44-103
29 CFR 1910.134
NOTES:

PROCESS SOURCE SHEET # IH 15-2

BLOCK TITLE Industrial Hygiene

MODULE TITLE Using Personal Protective Equipment

TASK OBJECTIVE: Select eye protection for industrial worksite hazards

CONDITIONS: Given an industrial worksite with hazardous substances

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.e.(3)(b)2.a	Select appropriate eye protection	b	
	Identify workplace hazards		
	2. Select eye protection that meets OSHA, Air		Υ
	Force or other appropriate general standards		
	3. Determine OSHA, Air Force or other		Y
	appropriate substance specific standards		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task.

LOCAL REQUIREMENTS:	

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.2, Sect.217

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: NONE

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Use of actual eye protective devices may be used to facilitate training and evaluation, but are not required.

TRAINER REFERENCES:

AFOSH STD 48-1 AFOSH STD 91-31 AFOSH STD 48-8 AFOSH STD 48-21 AFOSH STD 48-22 29 CFR 1910.133 29 CFR 1910, Subpart Z OSHA Technical Manual, Ch.12 ANSI Z87.1-68

NOTES:		

PROCESS SOURCE SHEET # IH 15-3

BLOCK TITLE Industrial Hygiene

MODULE TITLE
Using Personal Protective Equipment

TASK OBJECTIVE: Select skin protection for industrial worksite hazards

CONDITIONS: Given an industrial worksite with hazardous substances

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.e.(3)(b)2.b	Select appropriate skin protection	b	
-			
	Identify workplace hazards		
	2. Select skin protection that meets OSHA, Air		Y
	Force or other appropriate general standards		
	3. Determine OSHA, Air Force or other		Y
	appropriate substance specific standards		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task.

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.2, Sect.218

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: NONE

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Use of actual skin protective devices may be used to facilitate training and evaluation, but are not required.

TRAINER REFERENCES:

AFOSH STD 48-1 AFOSH STD 91-31 AFOSH STD 48-8 AFOSH STD 48-21 AFOSH STD 48-22 29 CFR 1910, Subpart Z OSHA Technical Manual, Ch.12

OTES:			

PROCESS SOURCE SHEET # IH 15-4

BLOCK TITLE Industrail Hygiene

MODULE TITLE Using Personal Protective Equipment

TASK OBJECTIVE: Explain proper procedures for the use, care and maintenance of respirators

CONDITIONS: Given industrial workers and supervisors enrolled in a Respiratory Protection Program, and various respirators

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.e.(3)(b)1.c	Recommend proper use, care, and	b	
	maintenance of respirators		
	 Identify situations which require the use of 		
	respirators		
	2. Identify special use situations, including escape		
	use, IDLH use, and use in situations which also		
	involve other routes of exposure		
	3. Explain how to use respirators IAW		Y
	manufacturers directions*		V
	4. Describe proper cleaning procedures*4.1 Clean and sanitize the respirator at the		Y
	end of each day of use		
	4.2 Disinfect respirators designated for		
	emergencies after each use		
	5. Describe respirator inspection procedures*		Y
	5.1 Verify tightness of all connections		
	5.2 Check the condition of the respiratory		
	inlet covering, head harness, valves,		
	connecting tubes, harness assemblies,		
	hoses, filters, cartridges, canisters,		
	service life indicator, and electrical		
	components		
	5.3 Verify the proper functioning of		
	regulators, alarms, and other warning		
	systems		
	5.4 Inspect rubber or other elastometric		
	parts for pliability and signs of		
	deterioration		
	5.5 Check air and oxygen cylinders IAW		

STS TASK #		STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
SIS IASK π		515 INON/50D-IASK IIIEE	CODE	SUB-TASK
00 - (0)//-)4 -	D			30D-1A3K
20.e.(3)(b)1.c		nend proper use, care, and	b	
•	mainten	maintenance of respirators		
		manufacturers directions		
	5.6	Maintain an AF Form 1071 for each		
		respirator		
	6. Descri	be proper maintenance procedures*		Υ
	6.1	Verify that replacement of parts,		
		adjustments, and repairs are performed		
		by properly trained personnel		
	6.2	Determine the interval for valve,		
		regulator and alarm calibration IAW		
		manufacturers directions		
	6.3	Change the cartridge or canister when		
		an increase in breathing resistance		
		occurs, when the contaminant can be		
		smelled/tasted or causes irritation,		
		when the service life date reaches		
		expiration, or as otherwise required by		
		OSHA standards		
	7. Descri	be proper storage procedures		
	7.1	Store respirators in a container or		
		environment that protects against dust,		
		sunlight, heat, extreme cold, excessive		
		moisture, or damaging chemicals		
	7.2	Identify locations where routinely used		
		respirators should not be stored		
	7.3	Identify proper storage configurations		
	, .0	so that the face piece, exhalation valve,		
		and other rubber or elastometric parts		
		rest in a normal position in order to		
		prevent distortion		
	7.4	Verify accessibility and clear marking of		
	/ . 	storage cabinets for emergency/		
		0 ,		
		rescue respirators		

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task.

LOCAL REQUIREMENTS:		

PREREQUISITES: Conduct Technical Training

CDC REFERENCE: N/A

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Various types of respirators

ADDITIONAL SUPPORTING MATERIALS: Classroom/training area

SPECIFIC TECHNIQUES: Evaluate based on presentation style and subject matter content.

TRAINER REFERENCES:

AFOSH STD 48-1 AFOSH STD 48-8 AFOSH STD 48-21 AFOSH STD 48-22 DoDI 6055.1, Encl.3 29 CFR 1910.134

NOTES:		

PROCESS SOURCE SHEET # IH 15-5

BLOCK TITLE Industrial Hygiene

MODULE TITLE Using Personal Protective Equipment

TASK OBJECTIVE: Evaluate the adequacy, use, and maintenance of PPE for chemical ingestion, absorption, and skin contact hazards

CONDITIONS: Given PPE used in a workplace with chemical ingestion, absorption, and skin contact hazards

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.e.(2)(b)2.	Evaluate adequacy, use, and maintenance of PPE	b	
	 Identify the ingestion, absorption, and skin contact hazards present in the workplace Research MSDSs to determine the specific PPE required for each ingestion, absorption, and skin contact hazard in the workplace Determine training requirements for each type of PPE based on manufacturers, Air Force, and federal requirements Verify the presence of required PPE* Interview workers to determine if PPE is used in accordance with MSDS and the manufacturer's directions* Inspect PPE for holes, tears, cracks or other signs of wear* 		Y Y

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.2, Sect.213

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Workplace specific PPE

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: This task may be trained and evaluated using workplace scenarios, or actual sites.

TRAINER REFERENCES:
AFOSH STD 127-31
AFOSH STD 48-1
AFOSH STD 48-8
AFI 48-101
AFI 48-119
AFI 91-301
DoDI 6055.1, Encl.3
29 CFR 1910.132140
ANSI Standard Z88.2-69
NOTES:

ADVANCED TOPICS IN PERSONEL PROTECTIVE EQUIPMENT MODULE

The Advanced Topics in Personal Protective Equipment Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title
20.e.(3)(b)1.i.	Conduct required initial/periodic training
20.e.(3)(b)1.f.	Perform selection of respiratory protective devices for personnel
20.e.(3)(b)1.g.1	Qualitative fit test

PROCESS SOURCE SHEET # IH 16-1

BLOCK TITLE Industrial Hygiene

MODULE TITLE Advanced Topics in Personal Protective Equipment

TASK OBJECTIVE: Conduct initial and periodic respirator training

CONDITIONS: Given the requirement to conduct respirator training, a variety of respirators, and equipment to conduct a respirator confidence test

		1	1
STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
20.e.(3)(b)1.i.	Conduct required initial/periodic training	b	
	Conduct supervisor training on the following		
	minimum required initial training topics*		Υ
	1.1 Explain basic respiratory protection		
	practices		
	1.2 Explain the nature and extent of		
	respiratory hazards to which workers		
	under their supervision may be expose	ed	
	1.3 Explain how to recognize and resolve		
	respirator use problems		
	1.4 Explain principles and criteria for		
	selecting respirators used by		
	subordinates		
	1.5 Explain required training for		
	workers/subordinates		
	1.6 Explain requirements for fitting and		
	issuing respirators		
	1.7 Explain inspection procedures		
	 1.8 Explain procedures for proper use, 		
	maintenance, storage, and monitoring		
	procedures		
	1.9 Explain regulations concerning		
	respirator use, including the preparation	n	
	of workplace Ols		
	2. Conduct initial training for respirator-wearers*		Y
	2.1 Identify the nature of the hazard and		
	consequences of incorrect respirator		
	usage		
	2.2 Explain why other controls are not beir	ng	

20.e.(3)(b)1.i. Conduct required initial/periodic training used 2.3 Explain why a particular type of respirator is being used 2.4 Explain the capabilities and limitations of the respirator 2.5 Explain how to recognize and cope with emergencies 2.6 Explain how to clean, maintain, and store the respirator 2.7 Explain how to operate special-use respirators 2.8 Explain how to inspect, put-on, check the fit, and wear the respirator 2.9 Explain the requirement to inform their supervisor about problems experienced while wearing respirators 2.10 Allow all students to don and doff the respirator, including wear in a test atmosphere 2.11 List the regulations concerning respirator use 3. Conduct training for respirator maintenance personnel* 3.1 Explain repair procedures, how to inspect for defects, cleaning and disinfection, and maintenance procedures specific to the types of respirators they will handle 3.2 Explain storage procedures/requirements 3.3 Explain respirator filter cartridge or filter change procedures	STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
used 2.3 Explain why a particular type of respirator is being used 2.4 Explain the capabilities and limitations of the respirator 2.5 Explain how to recognize and cope with emergencies 2.6 Explain how to clean, maintain, and store the respirator 2.7 Explain how to operate special-use respirators 2.8 Explain how to inspect, put-on, check the fit, and wear the respirator 2.9 Explain the requirement to inform their supervisor about problems experienced while wearing respirators 2.10 Allow all students to don and doff the respirator, including wear in a test atmosphere 2.11 List the regulations concerning respirator use 3. Conduct training for respirator maintenance personnel* 3.1 Explain repair procedures, how to inspect for defects, cleaning and disinfection, and maintenance procedures specific to the types of respirators they will handle 3.2 Explain storage procedures filter cartridge or filter change procedures			CODE	SUB-TASK
2.3 Explain why a particular type of respirator is being used 2.4 Explain the capabilities and limitations of the respirator 2.5 Explain how to recognize and cope with emergencies 2.6 Explain how to clean, maintain, and store the respirator 2.7 Explain how to operate special-use respirators 2.8 Explain how to inspect, put-on, check the fit, and wear the respirator 2.9 Explain the requirement to inform their supervisor about problems experienced while wearing respirators 2.10 Allow all students to don and doff the respirator, including wear in a test atmosphere 2.11 List the regulations concerning respirator use 3. Conduct training for respirator maintenance personnel* 3.1 Explain repair procedures, how to inspect for defects, cleaning and disinfection, and maintenance procedures specific to the types of respirators they will handle 3.2 Explain storage procedures/requirements 3.3 Explain respirator filter cartridge or filter change procedures	20.e.(3)(b)1.i.	Conduct required initial/periodic training	b	
NIOSH/OSHA certification for respirators (i.e., replacement parts) 4. Identify annual training requirements for respirator wearers, including retraining in all initial requirements and any additional		Conduct required initial/periodic training used 2.3 Explain why a particular type of respirator is being used 2.4 Explain the capabilities and limitations of the respirator 2.5 Explain how to recognize and cope with emergencies 2.6 Explain how to clean, maintain, and store the respirator 2.7 Explain how to operate special-use respirators 2.8 Explain how to inspect, put-on, check the fit, and wear the respirator 2.9 Explain the requirement to inform their supervisor about problems experienced while wearing respirators 2.10 Allow all students to don and doff the respirator, including wear in a test atmosphere 2.11 List the regulations concerning respirator use 3. Conduct training for respirator maintenance personnel* 3.1 Explain repair procedures, how to inspect for defects, cleaning and disinfection, and maintenance procedures specific to the types of respirators they will handle 3.2 Explain storage procedures/requirements 3.3 Explain respirator filter cartridge or filter change procedures 3.4 Explain the importance of maintaining NIOSH/OSHA certification for respirators (i.e., replacement parts) 4. Identify annual training requirements for respirator wearers, including retraining in all	CODE	SUB-TASK

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: Conducting Technical Training (IH2)

CDC REFERENCE: 90750 Vol.2, Sect.213,215

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Various respirators

ADDITIONAL SUPPORTING MATERIALS: Classroom/training

area with a location to create a test atmosphere

SPECIFIC TECHNIQUES: Evaluate actual content and presentation

skills

TRAINER REFERENCES:

AFOSH STD 48-1 29 CFR 1910.134

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NOTES:		

PROCESS SOURCE SHEET # IH 16-2

BLOCK TITLE Industrial Hygiene

MODULE TITLE Advanced Topics in Personal Protective Equipment

TASK OBJECTIVE: Select respiratory protective devices for personnel

CONDITIONS: Given a worksite containing hazardous chemicals, and a variety of respirators

STS TASK #	STS TASK/SUB-TASK TITLI	E PROF.	MANDATORY
		CODE	SUB-TASK
20.e.(3)(b)1.f.	Perform selection of respiratory pro	tective b	
	devices for personnel		
	Determine workplace hazards		
	1.1 Determine what contaminant	s may be	
	present in the workplace		
	1.2 Determine if the contaminant	has an	
	OEL, or estimate the toxicity	for the	
	contaminants		
	1.3 Determine if there is an OSH		
	substance-specific standard		
	asbestos) for the contaminar		
	1.4 Determine if the potential for	an oxygen	
	deficient environment exists		
	1.5 Determine if the potential for explosive atmosphere exists		
	10%)	(LEL >	
	1.6 Measure or estimate the con-	centration	
	of the contaminant(s)		
	1.7 Determine if the contaminant		
	concentration exceeds or cou	uld exceed	
	the IDLH concentration		
	1.8 Determine the physical state		
	contaminants (i.e., aerosol or	. ,	
	1.9 Determine whether the conta		
	present can be absorbed thr		
	skin, produce skin sensitizatio		
	irritating or corrosive to the e	,	
	 Determine for a gas or vapor contaminant if a known odor, 		
	Containinant ii a kilowii odor,	เลงเซ, บเ	

STS TASK #		STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
			CODE	SUB-TASK
20.e.(3)(b)1.f.	Perform	selection of respiratory protective	b	
		for personnel		
		irritation concentration exists		
	1.11	Determine if there is a potential for a		
		sudden chemical release that could		
		impair a worker's ability to egress the		
		area safely		
	2. Select	t respiratory protective devices that meet		
		eed the minimum protection		
		ements*		Υ
	2.1	Determine OSHA substance specific		
		requirements for respirator selection		
	2.2	Select SCBA with full face piece,		
		operated in pressure demand mode for		
		firefighting operations		
	2.3	Select a positive pressure SCBA with a		
		full facepiece, or a supplied air full		
		facepiece with emergency escape		
		SCBA for unknown hazard sampling		
		operations		
	2.4	Select a positive pressure SCBA w/ full		
		facepiece or a supplied air, full		
		facepiece respirator with escape SCBA		
		for an uncontrolled environment		
	2.5	Select a positive pressure SCBA or		
		supplied air respirator with escape		
		SCBA for an IDLH atmosphere		
	2.6	Select a positive pressure SCBA or		
		supplied air respirator with escape		
		SCBA for an oxygen deficient		
		atmosphere		
	2.7	Select a respirator for confined spaces		
		using AFOSH STD 91-25		
	2.8	Select an air purifying respirator with a		
		cartridge and a paint prefilter, or select		
		an atmosphere supplying respirator for		
		a contaminant that is a paint, lacquer or		
		enamel		
	2.9	Select a supplied air respirator for spray		
		painting or touch-up with polyurethane		
		paints indoors		
	2.10	Select a full facepiece air purifying		
		respirator with organic vapor cartridges		
		and HEPA filters when touching-up or		
		stenciling with polyurethane paints		
		outdoors		
	2.11	Select a full facepiece air purifying		
		respirator with organic vapor cartridges		
		and HEPA filters when performing roll-		
		on or brush painting operations		
	2.12	Select a supplied air respirator when		
		performing foam-in place operations		
	2.13	Select an atmosphere supplying		

STS TASK #	S	TS TASK/SUB-TASK TITLE	PROF.	MANDATORY
			CODE	SUB-TASK
20.e.(3)(b)1.f.	Perform se	election of respiratory protective	b	
	devices fo	r personnel		
	r v 2.14 l g r	respirator or an air purifying respirator with pesticide approved cartridges for pesticide applications Use a HEPA filter for an aerosol with a particle size (Mean Mass Aerodynamic Diameter [MMAD]) less than 2 micrometers, or an unknown size Use a HEPA filter for an aerosol that		
	1	nas an OEL which is less than 0.05 mg/m ³		
		Use a HEPA or fume-approved filter if the contaminant is a fume		
	6	Use any filter type in dust, fume, mist, or high efficiency respirators for an aerosol with a particle size greater than 2 micrometers MMAD		
	f c f	Select a loose-fitting facepiece or tight- fitting face piece operated in the continuous flow mode, or a tight-fitting facepiece operated in the pressure demand mode for abrasive blasting operations		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.2, Sect.213-215

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: NONE

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Conduct training and evaluation using a scenario, or an actual industrial worksite

TRAINER REFERENCES:

AFOSH STD 48-1 AFOSH STD 48-22 AFI 44-103 AFOSH STD 48-8 29 CFR 1910.134 (b), (c) ANSI Standard Z88.2-69

NOTES:		

PROCESS SOURCE SHEET # IH 16-3

BLOCK TITLE Industrial Hygiene

MODULE TITLE Advanced Topics in Personal Protective Equipment

TASK OBJECTIVE: Conduct a qualitative fit test for personnel requiring respiratory protection

CONDITIONS: Given the requirement to conduct a qualitative fit test, testing protocol, and required equipment

CTC TACK/CLID TACK TITLE	DDOE	MANDATODY
SISTASK/SUB-TASK TITLE		MANDATORY
	CODE	SUB-TASK
Qualitative fit test	b	
Explain the purpose of conducting a qualitative		
fit test		
Perform respirator selection		
sizes from two different manufacturers		
2.2 Assess comfort based on the following		
filled out, self-observation in mirror		
for five minutes to confirm comfort		
3. Perform qualitative fit testing using the Isoamyl		
1*		Υ
3.1 Conduct screening test to ensure the		
distilled water		
cc stock solution to 500 cc distilled		
water		
	 Perform respirator selection Allow the subject to select the most comfortable respirator from at least three sizes from two different manufacturers Assess comfort based on the following criteria: chin placement, positioning and fit on nose, strap tension, room for safety glasses, distance from nose to chin, room to talk, tendency to slip, cheeks filled out, self-observation in mirror Instruct the subject to wear the respirator for five minutes to confirm comfort Perform qualitative fit testing using the Isoamyl Acetate (IAA) Protocol listed in AFOSH Std 48-1* Conduct screening test to ensure the subject can smell IAA Prepare IAA stock solution by adding 1 cc pure IAA to 800 cc distilled water Prepare test solution by adding .4 cc stock solution to 500 cc distilled 	Qualitative fit test 1. Explain the purpose of conducting a qualitative fit test 2. Perform respirator selection 2.1 Allow the subject to select the most comfortable respirator from at least three sizes from two different manufacturers 2.2 Assess comfort based on the following criteria: chin placement, positioning and fit on nose, strap tension, room for safety glasses, distance from nose to chin, room to talk, tendency to slip, cheeks filled out, self-observation in mirror 2.3 Instruct the subject to wear the respirator for five minutes to confirm comfort 3. Perform qualitative fit testing using the Isoamyl Acetate (IAA) Protocol listed in AFOSH Std 48-1* 3.1 Conduct screening test to ensure the subject can smell IAA 3.1.1 Prepare IAA stock solution by adding 1 cc pure IAA to 800 cc distilled water 3.1.2 Prepare test solution by adding .4 cc stock solution to 500 cc distilled

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	
20 a/2\/b\1 a	Qualitative fit test		SOD-TASK
20.e(3)(b)1.g.	Qualitative fit test	b	
1	3.1.3 Shake test solution for 30	Laccondo	
	and allow to stand for 2-3		
	3.1.4 Prepare a test blank by p		
	500 cc distilled water into		
	separate container	a	
	3.1.5 Determine if the subject of	an	
	identify IAA by smelling b		
	containers and selecting t		
	with the test solution		
	3.2 Instruct the subject to don the	selected	
	respirator, then wait at least te		
	3.3 Soak a 6" by 5" paper towel wi		
	of pure IAA and place it in the		
	chamber		
	3.4 Wait two minutes, then have the	ne subject	
	enter the test chamber		
	3.5 Instruct the subject to conduct	the	
	following fit test exercises for a	at least	
	one minute each		
	3.5.1 Instruct the subject to bre	athe	
	normally for one minute		
	3.5.2 Instruct the subject to tak	e deep	
	breaths for one minute	va tha	
	3.5.3 Instruct the subject to mo head from side to side for		
	minute	one	
	3.5.4 Instruct the subject to not	1 the	
	head up and down for one		
	3.5.5 Instruct the subject to rea		
	"Rainbow Passage" or sir		
	for at least one minute, in		
	create a wide range of fac	cial	
	movements		
	3.5.6 Instruct the subject to bre		
	normally again for one mi		
	4. Perform qualitative fit testing using the		
	Fume Protocol listed in AFOSH Std 48		Y
	4.1 Ensure the selected respirator equipped with high efficiency (
	cartridges		
	4.2 Allow the subject to smell a we	ak	
	concentration of the irritant sm		
	familiarize with the odor		
	4.3 Instruct the subject to don the	selected	
	respirator, then wait at least te		
	4.4 Conduct positive pressure/neg	ative	
	pressure fit checks IAW manu	facturers	
	directions		
	4.5 Conduct fit test exercises		
	4.5.1 Break both ends of a star		
	oxychloride or stannic chl	oride	

STS TASK #	S	S TASK/SUB-TASK TITLE	PROF.	MANDATORY
STS TASK II	STO THOM/SCD THOM TITLE		CODE	SUB-TASK
20 o/2\/b\1 a	Qualitative fit test		b	SOD-TASK
20.e(3)(b)1.g.	Quantative	iii lest	D D	
<u> </u>				
	4.5	ventilation smoke tube		
	4.5.			
		pressure pump delivering air at 200		
		mL/minute on one end, and a short		
		length of flexible tubing on the		
		other end		
	4.5.	•		
	4.5	his/her eyes		
	4.5.			
		the edges of the mask throughout		
		the exercises		
	4.5.			
		normally for one minute		
	4.5.	,		
		breaths for one minute		
	4.5.			
		head from side to side for one		
		minute		
	4.5.			
		head up and down for one minute		
	4.5.			
		backwards from 100 for at least		
		one minute		
	4.5.			
		normally again for one minute		
		fy sensitivity of the subject to the		
	smo	smoke after removal of the respirator		

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol.2, Sect.213-214

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Various respirators, 1cc pure isoamyl acetate, distilled water, paper towels, low pressure air pump, appropriate smoke tubes

ADDITIONAL SUPPORTING MATERIALS: Classroom/training area with a test chamber area

SPECIFIC TECHNIQUES: Conduct hands on training and evaluation

TRAINER REFERENCES:

AFOSH STD 48-1 AFI 44-103 TO 42B6-1-1 DoDI 6055.1 Encl.3 29 CFR 1910.134(e)(5)(i) 29 CFR 1926.1127 App. C 40 CFR 763.121 App. C

NOTES:		

CONTINGENCY BLOCK

The Contingency Block consists of the following Qualification Training Package (QTP) Modules:

Number	Module Title	Page
C1	Hazardous Waste Site Operations Module	C2
C2	Spill Prevention and Response Module	C5
C3	Potable Water Module	C8
C4	NARP Module	C18
C5	NBC Module	C31

HAZARDOUS WASTE SITE OPERATIONS MODULE

The Hazardous Waste Site Operations Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title	
17.o.	Hazardous waste site operation	
17.n.	Decontamination at hazardous waste sites	

BLOCK TITLE Contingency

MODULE TITLE Hazardous Waste Site Operations Module

TASK OBJECTIVE: Identify site operations necessary to protect human health and the environment

CONDITIONS: Given a potential for chemical emergencies

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
17.o.	Hazardous Waste Site Operations	b	
	 Identify activities conducted at hazardous waste sites in accordance with the requirements of 29 CFR 1910.120* Identify safety and health considerations associated with a hazardous waste site operations 		Y

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: N/A

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: NONE
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: NONE
TRAINER REFERENCES:
29 CFR 1910.120 40 CFR 265 NIOSH Pub 85-115
NOTES:

BLOCK TITLE Contingency

MODULE TITLE Hazardous Waste Site Operations Module

TASK OBJECTIVE: Identify decontamination procedures

CONDITIONS: Given an emergency situation with a hazardous materials release

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
17.n.	Decontamination at hazardous waste sites	b	
	State the purposes of decontamination Review procedures outlined in the site safety plan		

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: N/A

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Example Site Safety Plan

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Conduct training and evaluation using scenarios.

TRAINER REFERENCES:

AFI 48-101 10.2, 11 AFI 32-7006 AFI 48-119 29 CFR 1910.120(k) OSHA Technical Manual Ch. 12.1. EPA Pub 9285.2-02A

NOTES:		

SPILL PREVENTION AND RESPONSE MODULE

The Spill Prevention and Response Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title
28.e.(4)	Identify and brief field officials on possible health hazards
28.e.(7)	Recommend personal protective equipment

BLOCK TITLE Contingency

MODULE TITLE Spill Prevention and Response Module

TASK OBJECTIVE: Determine the potential health hazards and brief field officials

CONDITIONS: Given an emergency situation involving a hazardous release

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
28.e.(4)	Identify and brief field officials on possible health	b	
	hazards		
	1. Identify known and potential health hazards at a		
	site*		Y
	2. Identify field officials to notify of site conditions		
	3. Explain suspected health hazards to officials*		Y
	4. Brief officials on community or personnel affected		
	or potentially affected by the emergency		

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:	

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol. 5, Sect. 818

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: NONE

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Conduct training and evaluation using

scenarios

TRAINER REFERENCES:

AFI 48-101 10.2, 11 Aerospace Medical Operations AFI 48-119

NOTES:		

BLOCK TITLE Contingency

MODULE TITLE Spill Prevention and Response Module

TASK OBJECTIVE: Recommend the proper personal protective equipment for personnel to wear around the release area

CONDITIONS: Given an emergency situation involving a hazardous release

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
28.e.(7)	Recommend personal protective equipment	b	
	 Determine source, type, extent, and quantity of the spilled substance Use material safety data sheets, the DOT Emergency Response Guidebook, the NIOSH Pocket Guide to Chemical Hazards, or other guidebook to determine the level of protection required for the spilled chemical Identify possible exposure routes Identify available respiratory and clothing protection Recommend level A, B, C, or D PPE for personnel responding to the spill Assess the performance of the PPE as an effective barrier to a hazard Ensure workers/responders use PPE properly 		

LOCAL REQUIREMENTS:

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol. 5, Sect 818

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: MSDSs, DOT Guidebook, NIOSH Pocket Guide

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Conduct training and evaluation using scenarios or simulated incident.

TRAINER REFERENCES:

AFOSH STD 91-31 AFI 48-101 AFI 48-119 29 CFR 1910.120(c)(5) 10 CFR 20.1703 EPA Pub 9285.1-03

NOTES:		

POTABLE WATER MODULE

The Potable Water Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title
28.f.(2)	Monitor chlorine and bacteriological quality
28.f.(1)	Maintain and use the field bacteriological test kit
28.f.(3)	Calculate chlorination requirements
28.f.(11)	NBC decontamination and treatment techniques

BLOCK TITLE Contingency

MODULE TITLE Potable Water Module

TASK OBJECTIVE: Monitor chlorine levels and bacteriological water quality

CONDITIONS: Given field or contingency water

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
28.f.(2)	Monitor chlorine and bacteriological quality	b	
	 Define the following terms: Free Available Chlorine Residual, Total Combined Chlorine, and Total Residual Chlorine Describe the DPD Colorimetric analysis method Define the principle behind colorimetric testing using the DPD field test kit List the DPD test kit contents, including chlorine color comparators and four reagent tablets Select sampling locations for chlorine* Select and prepare sampling containers* Collect sample* List the procedures to conduct chlorine analysis*		Y Y Y Y

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
28.f.(2)	Monitor chlorine and bacteriological quality	b	
	5.12 Mix until tablet dissolves		
	5.13 Insert cell into comparator and match		
	closest color		
	5.14 Report results of Dichloramine		
	5.15 Rinse new test cell and fill to graduated line		
	5.16 Add one #4 tablet to test cell and insert		
	stopper 5.17 Mix until tablet dissolves		
	5.17 Mix until tablet dissolves 5.18 Insert cell into comparator and match		
	closest color		
	5.19 Report results of TRC		
	6. Select and prepare containers for bacteriological		
	analysis*		Y
	6.1 Identify sampling container alternatives		
	6.2 Select laboratory certified containers		
	6.3 Prepare sampling containers		
	6.3.1 Before each use, examine glassware		
	and discard items with chipped edges		
	or etched inner surfaces 6.3.2 Clean and rinse bottles with distilled		
	water and detergent		
	6.3.3 Conduct final rinse with distilled water		
	three times		
	6.3.4 Use utensils and containers made of		
	borosilicate glass, stainless steel,		
	aluminum, or other corrosion resistant		
	material		
6.3.5 Dechlorinate sampling containers to			
prevent continuation of bacteriological			
	actions during transit using 10% sodium thiosulfate solution		
	6.3.5.1 Dissolve 5 g sodium thiosulfate in		
	25 mL distilled water		
	6.3.5.2 Add distilled water to bring		
	amount to 50 mL		
	6.3.5.3 Mix, then transfer solution to a		
	bottle to store in the refrigerator		
	6.3.5.4 Mark the bottle with date, name		
	and time of preparation		
	6.4 Sterilize bottles for at least 60 min at 170C in a sterilizing oven or 30min at 121C in an		
	a sterming oven or somm at 121°C in an autoclave		
	7. Collect samples for bacteriological analysis		
	7.1 Use aseptic techniques to avoid		
	contamination		
	7.2 Keep sampling bottle closed until it is to be		
	used		
	7.3 Collect samples that are representative of the		
	water tested		

STS TASK #	STS TASK/SUB-TASK TITLE		MANDATORY SUB-TASK
28.f.(2)	Monitor chlorine and bacteriological quality	b	
	7.4 Collect samples following the techniques for		
	each of the water sources given in Standard		
	Methods*		Y
	7.4.1 Disinfect sample ports		
	7.4.2 Flush cold water faucet for 2 - 3 min		
	7.4.3 Test pH level of the water		
	7.4.4 Determine free available chlorine level		
	of the water (and further tests as		
	required)		
	7.4.5 Collect sample		
	7.4.5.1 Remove stopper and cap together		
	and do not contaminate		
	7.4.5.2 Fill container without rinsing,		
	replace stopper or cap immediately		
	and secure		
	7.4.5.3 Leave at least 2.5 cm air space in		
	the bottle (1 in)		
	7.5 Record collection point, date, time, FAC, and		
	pH on appropriate form/log		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol. 1, Sect. 038

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: DPD test kit, sampling containers, sterilizing oven, sodium thiosulfate solution ingredients, log book

ADDITIONAL SUPPORTING MATERIALS: Sampling location

SPECIFIC TECHNIQUES: Conduct training and evaluation in an actual field setting.

TRAINER REFERENCES:

AFI 48-119, 9.6.3

AFI 44-103

AL Sampling Guide

Standard Methods for the Examination of Water and Wastewater, 18th Edition 1992, Section 4500-Cl, 9000.

BLOCK TITLE Contingency

MODULE TITLE Potable Water Module

TASK OBJECTIVE: Maintain and use the field test kit

CONDITIONS: Given the requirement to analyze total coliform bacteria in field or contingency water supplies

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
SISIASK #	SIS TASK/SOD-TASK TITLE	CODE	SUB-TASK
20.0(1)	1		SUD-TASK
28.f.(1)	Maintain and use the field bacteriological water	b	
	test kit		
	1. Prepare and use the membrane filter kit*		Y
	1.1 Name, sterilize, and assemble the		
	component parts of a membrane filter test		
	kit		
	1.2 Identify the major components of the		
	portable water lab		
	1.3 Locate the filtration unit and identify its		
	parts		
	1.4 Remove the funnel and sterilize it, the filter		
holder, and forceps			
	1.5 Prepare dehydrated Endo broth media		
	1.6 Prepare a positive blank sample by using		
	water from sources containing fecal		
	organisms, add 1 mL water to a sterilized		
	bottle and 100 mL distilled water		
	1.7 Prepare a negative blank sample by adding		
	100 mL distilled water to a thiosulfate		
	sterilized bottle		
	1.8 Place a clean absorbent pad onto a petri		
	dish and add 1.8 mL of culture media broth		
	1.9 Attach a syringe via a suction tube to the		
	filter holder		
	1.10 Pour 10mL distilled water into the funnel		
	and observe for leakage		
	1.11 Use the forceps to place the filter, grid side		
	up into the filter holder		
	1		
L			1

STS TASK/SUB-TASK TITLE	PROF	MANDATORY
SISTASK/SOD-TASK TITLE		SUB-TASK
		SUD-TASK
_	b	
77077		
1.13 Pump the syringe until the entire sample is extracted		
1.14 Rinse funnel three times with distilled water		
1.15 Remove the filter and place on the petri		
<u> </u>		
for 22-24 h		
1.16 Filter the positive blank in the same manner		
2. Determine the number of total coliform colonies		
in the water sample*		Y
1		
over		
2.2 Adjust the microscope to 10X, position a		
_		
1		
· ·		
/		
` `		
manufacturer's instructions		
	extracted 1.14 Rinse funnel three times with distilled water 1.15 Remove the filter and place on the petri dish, grid side up, close the petri dish, invert the dish, and incubate it at 35+/-0.5C for 22-24 h 1.16 Filter the positive blank in the same manner 2. Determine the number of total coliform colonies in the water sample* 2.1 Gently remove the petri dish and turn it over 2.2 Adjust the microscope to 10X, position a light source as close to vertical as possible 2.3 Examine the grid back and forth and count the number of colonies (pink to dark red with a metallic sheen) 2.4 Discard filters with over 200 colonies 2.5 Report the colony count per 100 mL; (indicator organisms counted X % dilution X 100)/ mL filtered sample = indicator organisms per 100 mL 3. Maintain field bacteriological test kit according to	Maintain and use the field bacteriological water test kit 1.12 Pour 100 mL of the negative blank sample into the funnel 1.13 Pump the syringe until the entire sample is extracted 1.14 Rinse funnel three times with distilled water 1.15 Remove the filter and place on the petri dish, grid side up, close the petri dish, invert the dish, and incubate it at 35+/-0.5C for 22-24 h 1.16 Filter the positive blank in the same manner 2. Determine the number of total coliform colonies in the water sample* 2.1 Gently remove the petri dish and turn it over 2.2 Adjust the microscope to 10X, position a light source as close to vertical as possible 2.3 Examine the grid back and forth and count the number of colonies (pink to dark red with a metallic sheen) 2.4 Discard filters with over 200 colonies 2.5 Report the colony count per 100 mL; (indicator organisms counted X % dilution X 100)/ mL filtered sample = indicator organisms per 100 mL 3. Maintain field bacteriological test kit according to

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol. 1, Sect. 033

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Membrane filter test kit, log book

ADDITIONAL SUPPORTING MATERIALS: Water Sample

SPECIFIC TECHNIQUES: Ensure trainee maintains a sterile work environment.

TRAINER REFERENCES:

AFI 48-119, 9.6.3 Medical Service Environmental Quality Programs AFI 44-103

Standard Methods for the Examination of Water and Wastewater, 18th Edition 1992, Section 9222 C.

NOTES:		

BLOCK TITLE Contingency

MODULE TITLE Potable Water Module

TASK OBJECTIVE: Calculate chlorination requirements

CONDITIONS: Given a requirements to monitor field drinking water

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
SISIASK #	SISTASK/SOD-TASK TITLE	CODE	SUB-TASK
20.0(2)			SUD-TASK
28.f.(3)	Calculate chlorination requirements	b	
	1. Identify supplies needed to chlorinate unit water		
	supplies		
	2. Identify when to chlorinate the unit water supply		
	3. Check chlorine residual		
	3.1Identify equipment needed to check chlorine residual		
	3.2 Determine the desired chlorine residual in parts per million		
	3.3 Select the desired color comparison tube		
	(marked 1, 5, or 10) based on the desired chlorine residual		
	3.4Place one test tablet in the color comparison		
	tube cap and crush it with the bottom of the		
	test tablet bottle		
	3.5 Put the crushed tablet into the color comparison		
	tube		
	3.6 Flush the spigots of the water container being		
	checked and fill the tube to a point just below the color band		
	3.7Place the cap on the color comparison tube and		
	shake it until the tablet is completely dissolved		
	3.8Compare the color shade of the water with the		
	color band on the comparison tube		
	3.9Chlorinate the water if the color is lighter than		
	the color band on the tube		
	4. If the chlorine residual is less than the desired		

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
28.f.(3)	Calculate chlorination requirements	b	
	level, add enough chlorine to raise the residual to 5		
	ppm or required level*		
	4.1If checking a water can, add one ampule		Y
	to attain 5 ppm		
	4.2If checking a Lyster bag, add three		
	ampules to attain 5 ppm		
	4.3If checking a 400-gallon water buffalo,		
	add 5 level mess kit spoonfuls (5		
	tablespoons) of calcium hypochlorite per		
	100 gallons of water		
	5. Within 10 minutes, check the chlorine residual		
	5.1If the residual is less than the desired		
	amount, continue to add chlorine		
	5.2If the residual is at least at the desired		
	level, wait 20 minutes before drinking		

* These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol. 1, Sect. 029

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: Chlorine ampules, comparison tube, calcium

hypochlorite

ADDITIONAL SUPPORTING MATERIALS: Field Water Supply

SPECIFIC TECHNIQUES: Conduct training and evaluation in an

actual field setting.

AFM 161-10 Standard Methods for the Examination of Water and Wastewater, 18th Edition 1992, Section 2350 B.
NOTES:

TRAINER REFERENCES:

BLOCK TITLE Contingency

MODULE TITLE Potable Water Module

TASK OBJECTIVE: Identify decontamination and treatment techniques for nuclear, biological, and chemical agents

CONDITIONS: Given a contingency water supply

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks. The student will be able to determine step by step procedures for doing the task. (Proficiency level "b")

	T	1	T
STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
28.f.(11)	NBC Decontamination and treatment techniques	b	
	1. List procedures to survey the type and extent of		
	NBC contamination		
	2. Recognize that decontamination should only be		
	conducted if there are no other water supplies		
	available		
	3. Identify procedures to decontaminate water		
	supplies		
	3.1 Identify implications and effects of		
	decontaminating with supertropical bleach		
	3.2 Identify implications and effects of		
	decontaminating with DS2		
	3.3 Identify implications and effects of		
	decontaminating by heating		
	3.4 Identify implications of decontaminating		
	using other methods, such as straining		
	through charcoal, or through an		
	uncontaminated GCE		
	3.3 Identify personal protective equipment to		
	wear while conducting decontamination		
	3.4 List safety precautions to consider		
	4. Test water supplies for residual NBC		
	contaminants		

LOCAL REQUIREMENTS:		
DDEDEOLUCITES. NONE		
PREREQUISITES: NONE		
CDC REFERENCE: 90750 Vol. 5, Sect. 815		
QTP REFERENCE: TBD		
TRAINING AND EVALUATION TECHNIQUES:		
EQUIPMENT: Decontaminating agents.		
ADDITIONAL SUPPORTING MATERIALS: Simulated contaminated water supply		
SPECIFIC TECHNIQUES: Conduct training and evaluation using a simulated scenario.		
TRAINER REFERENCES:		
AFI 161-3 AFI 41-106		
NOTES:		

NARP MODULE

The NARP Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title
28.d.(4)(b)	Identify possible health hazards
28.d.(4)(a)	Operationally check, maintain, and use Broken Arrow response equipment other than radiac
28.d.(4)(g)	Use and maintain radiac equipment
28.d.(4)(e)1.	Calculate airborne contamination
28.d.(4)(c)1.	Interpret airborne sampling results
28.d.(4)(c)2.	Interpret surface contamination results
28.d.(4)(c)3.	Recommend personal protective equipment

BLOCK TITLE Contingency

MODULE TITLE NARP

TASK OBJECTIVE: Identify possible health hazards at a nuclear weapons accident site

CONDITIONS: Given a simulated nuclear weapons accident

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
28.d.(4)(b)	Identify possible health hazards	b	
	Identify possible hazards from weapons grade		
	fissionable materials*		Y
	1.1 Identify inhalation hazards associated with		
	alpha particles		
	1.2 Identify the potential for absorption of		
	alpha particles into the bloodstream		
	through open cuts and wounds		
	1.3 Identify the potential for exposure to x-rays		
	and gamma radiation in high quantities if a		
	partial yield has occurred		
	2. Identify possible effects of uranium and		
	plutonium*		Y
	2.1 Identify the potential effects of uranium,		
	including heavy metal poisoning and long		
	term contamination		
	2.2 Identify the potential effects of plutonium,		
	including various bone diseases, bone		
	cancer, and liver ailments		
	3. Identify possible hazards from toxic chemicals and		
	toxic gases from heavy metals, plastics, composite		37
	fibers, and red fuming nitric acid*		Y
	4. Recognize possible explosive hazards from high		37
	explosives and solid rocket motors*		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol. 5, Sect 809
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: NONE
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Conduct evaluation using scenarios or a simulated accident site.
TRAINER REFERENCES:
AFM 355-2 Nuclear Accident Response Plan
DoD Directive 5100.52M AFI 48-101
AFI 91-301 TR 83-115
NOTES:

BLOCK TITLE Contingency

MODULE TITLE NARP

TASK OBJECTIVE: Check, maintain, and use nuclear weapons accident response equipment, excluding radiac instruments

CONDITIONS: Given nuclear weapons accident response equipment and a simulated nuclear weapons accident

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
28.d.(4)(a)	Operationally check, maintain, and use Broken	b	
	Arrow response equipment other than radiac		
	1. List types of response equipment, including		
	sampling devices, communications equipment,		
	rescue equipment, transportation equipment, and		
	PPE		
	2. Check, maintain and use administrative equipment,		
	including maps, reference books, magnetic		
	compass, flashlights, writing materials, and		
	documentation forms*		Y
	3. Check, maintain and use PPE, including anti-		
	contamination suits, masking tape, respirators, and		37
	SCBA*		Y
	4. Check, maintain and use monitoring/sampling		
	equipment, including Stayplex air samplers, filters,		
	water sample containers, swipe sample envelopes, and sample bags*		Y
	5. Check, maintain and use Broken Arrow TLDs in		I
	accordance with AL guidelines		
	6. Check maintain and use communications		
	equipment IAW appropriate TO or manufacturer's		
	instructions*		Y
	7. Check, maintain and use power generation		•
	equipment IAW appropriate TO or manufacturer's		
	instructions*		Y
	8. Check, maintain and use transportation		_
	equipment IAW appropriate TO or		
	manufacturer's instructions*		Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol. 5, Sect. 810
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Sampling/monitoring devices, communications equipment, rescue equipment, transportation equipment, power generation equipment, administrative equipment and PPE.
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Conduct hands-on training and evaluation at a simulated accident site.
TRAINER REFERENCES:
USAF AL Report 84-001RZ111KXX DoD Directive 5100.52M TR 83-115
NOTES:

BLOCK TITLE Contingency

MODULE TITLE NARP

TASK OBJECTIVE: Describe procedures to use and maintain radiac equipment

CONDITIONS: Given radiac equipment and a simulated nuclear weapons accident

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
20.1(4)(-)	TT		SUD-TASK
28.d.(4)(g)	Use and maintain radiac equipment	b	
	1. Use the ADM-300A monitor to detect alpha, beta,		37
	and gamma radiation levels*		Y
	1.1 Insert two new batteries into the monitor		
	prior to use		
	1.2 Attach the appropriate probe prior to		
	turning the monitor on		
	1.3 Turn the meter on and ensure it reads		
	the appropriate type of probe		
	1.4 Point the probe towards the		
	contamination source		
	1.5 Read the concentration levels in dpm/cm ²		
	for alpha radiation 1.6 Read the dose rate in micro-Roentgens (uR) for gamma radiation 1.7 Identify the presence of beta radiation		
	using the monitor		
	2. Maintain the ADM-300A monitor*		Y
	2.1 Clean external portions of the monitor		
	after each use		
	2.2 Ensure the batteries are removed after		
	each use		
	 2.3 Check the case, switches, beta window, and display window for cracks or breakage 2.4 Check all probe and pin connectors to ensure they are straight, free of foreign 		
	material, and otherwise undamaged		
	2.5 Check the battery well gasket and battery		
	contacts for damage and cleanliness		

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
28.d.(4)(g)	Use and maintain radiac equipment	b	
20.4.(1)(g)	2.6 Ensure the beta window cover is closed before placing the monitor into storage		
	3. Use and maintain the PAC 1S Alpha*		Y
	3.1 Identify storage and maintenance		1
	requirements in TO 11H4-2-31		
	3.2 Set scale switch to desired setting		
	3.3 Remove mylar screen protector		
	3.4 Place probe face the desired distance		
	from the contaminated surface		
	3.5 Move probe face slowly over		
	contaminated surface		
	3.6 Determine actual reading by multiplying		
	the scale reading by the number set on		
	the scale switch		
	4. Use the AN/PDR-27 Radiac Set*		Y
	4.1 Turn on and connect headset		
	4.2 Turn to .5 scale, open shield and read the		
	meter		
	4.3 Record background beta radiation reading		
	4.4 Turn to 500 scale and hold probe 1" from		
	surface, if no reading drop to next		
	lowest scale		
	4.5 Scale setting is the actual dose rate when		
	reading equals twice the initial		
	background reading		
	5. Maintain the AN/PDR-27 Radiac Set*		Y
	5.1 Verify all components are present		
	5.2 Inspect the meter glass for damage		
	5.3 Inspect the outer surfaces for cleanliness		
	5.4 Inspect the battery box for corrosion		
	5.5 Inspect the test sample		
	5.6 Verify the calibration date has not expired		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:

PREREQUISITES: NONE CDC REFERENCE: 90750 Vol. 5, Sect. 809 QTP REFERENCE: TBD TRAINING AND EVALUATION TECHNIQUES: EQUIPMENT: ADM-300A, PAC 15 Alpha, AN/PDR-27 and test samples. ADDITIONAL SUPPORTING MATERIALS: None SPECIFIC TECHNIQUES: Conduct hands-on training and evaluation at a simulated accident site. TRAINER REFERENCES: TO 11H4-2-31 TO 11H4-7-3-201 TO 11H4-2-14-1 NOTES:

BLOCK TITLE Contingency

MODULE TITLE NARP

TASK OBJECTIVE: Calculate airborne contamination levels at a nuclear weapons accident site

CONDITIONS: Given an air sample and sampling information from an alpha meter reading in counts per minute from a simulated nuclear weapons accident site

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
313 1A3K#	SISTASK/SUD-TASK TITLE		
		CODE	SUB-TASK
28.d.(4)(e)1.	Calculate airborne contamination	b	
	1. Calculate airborne activity concentrations in		
	dpm/m^3 using the following formula: $dpm/m^3 =$		
	(cpm x CF) / (AFR x T)*		Y
	1.1 Identify average flow rate (AFR) of the		
	air pump		
	1.2 Identify the time (T) in minutes of the		
	sample period		
	1.3 Determine the conversion factor (CF) for a		
	specific piece of equipment		
	1.3.1 Convert PAC-1S sampling results from		
	cpm to dpm/100 cm ² using the following		
	conversion formula: $dpm/100 cm^2 = cpm$		
	x 3.39		
	1.3.2Convert AN-PDR-56 (17 cm2 probe)		
	sampling results from cpm to dpm/100		
	cm2 using the following conversion		
	formula: dpm/100cm x 11.76		
	1.3.3 Convert AN-PDR-56 (x-ray probe)		
	sampling results from cpm to dpm/100		
	cm ² using the following conversion		
	formula: dpm/100cm x 266.4		
	2. Calculate adjustment factor when probe is not in		
	direct contact with the filter surface*		Y
	2.1 Calculate the adjustment factor for a probe		1
	held 1/8" above the surface using the		
	following formula: actual concentration =		
	concentration reading / 0.83		
	concentration reading / 0.03		
		1	1

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
28.d.(4)(e)1.	Calculate airborne contamination	b	
	2.2 Calculate the adjustment factor for a probe held 1/4" above the surface using the following formula: actual concentration = concentration reading / 0.64 2.3 Calculate the adjustment factor for a probe held 3/8" above the surface using the following formula: actual concentration = concentration reading / 0.45 2.4 Calculate the adjustment factor for a probe held 1/2" above the surface using the following formula: actual concentration = concentration reading / 0.28		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:	

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol. 5, Sect. 810

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: NONE

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: NONE

DoD Directive 5100.52M 10 CFR 20.1203, .1204		
NOTES:		

TRAINER REFERENCES:

TR 83-115

BLOCK TITLE Contingency

MODULE TITLE NARP

TASK OBJECTIVE: Interpret and brief the results of airborne sampling to nuclear weapons accident site field officials

CONDITIONS: Given results of airborne contamination level sampling at a nuclear weapons accident

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
28.d.(4)(C)1.	Interpret airborne sampling results	b	
	1. Compare results to standard		
	2. Brief field officials on results of air sampling		
	3. Recommend actions*		Y
	3.1. Recommend respiratory protection based on		
	the results of airborne contamination monitoring		
	3.2 Recommend permissible exposure criteria		
	based on the results of airborne		
	contamination monitoring		

LOCAL REQUIREMENTS:

BLOCK TITLE Contingency

MODULE TITLE NARP

TASK OBJECTIVE: Interpret and brief the results of surface contamination monitoring to nuclear weapons accident site field officials

CONDITIONS: Given results of surface contamination monitoring at a nuclear weapons accident

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to name parts tools, and simple facts about the task. (Proficiency level "a")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
28.d.(4)(c)2.	Interpret surface contamination results	a	
	1. Compare results to standard		
	2. Brief field officials on results of surface		
	contamination sampling		
	3. Recommend actions*		Y
	3.1. Recommend respiratory protection based on		
	the results of surface contamination monitoring		
	3.2 Recommend permissible exposure criteria		
	based on the results of surface		
	contamination monitoring		

	LOCAL REQUIREMENTS:
١	

PREREQUISITES: NONE			
CDC REFERENCE: 90750 Vol. 5, Sect. 809			
QTP REFERENCE: TBD			
TRAINING AND EVALUATION TECHNIQUES:			
EQUIPMENT: NONE			
ADDITIONAL SUPPORTING MATERIALS: NONE			
SPECIFIC TECHNIQUES: NONE			
TRAINER REFERENCES: TR 83-115 DoD Directive 5100.52M			
NOTES:			

BLOCK TITLE Contingency

MODULE TITLE NARP

TASK OBJECTIVE: Recommend the appropriate level of personal protective equipment (PPE) required at a nuclear weapons accident site

CONDITIONS: Given results of airborne sampling and surface contamination monitoring at a nuclear weapons accident site

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
28.d.(4)(c)3	Recommend personal protective equipment	b	
	1. Recommend PPE based on airborne contamination		
	levels*		Y
	1.1 Recommend no PPE use for		
	contamination below 100 dpm/m ³		
	1.2 Recommend use of full face respirator with		
	HEPA filter for contamination between 100-		
	$10,000 \text{ dpm/m}^3$		
	1.3 Recommend use of pressure demand		
	SCBA for contamination above 10,000		
	dpm/m ³		
	2. Recommend PPE based on surface contamination		
	levels*		Y
	2.1 Recommend shoe covers and gloves for		
	<10,000 reading with a 60 cm ² probe or		
	<2,500 reading with a 17 cm ² probe		
	2.2 Recommend anti-contamination clothing		
	and full face respirator w/ HEPA for		
	readings from 10,000-1,000,000 with a 60		
	cm ² probe or $2,500-250,000$ with a 17 cm ²		
	probe		
	2.3 Recommend pressure demand SCBA for		
	readings above 1,000,000 with a 60 cm ²		
	probe or 250,000 with a 17 cm ² probe		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:			
PREREQUISITES: NONE			
CDC REFERENCE: 90750 Vol. 5, Sect. 809-810			
QTP REFERENCE: TBD			
TRAINING AND EVALUATION TECHNIQUES:			
EQUIPMENT: NONE			
ADDITIONAL SUPPORTING MATERIALS: NONE			
SPECIFIC TECHNIQUES: Conduct training and evaluation using scenarios or a simulated accident site.			
TRAINER REFERENCES:			
TR 83-115			
AFI 32-4001 AFI 48-101			
AFI 91-301			
AFOSHSTD91-31 DoD Directive 5100.52M			
NOTES:			

NBC MODULE

The NBC Module consists of the following Specialty Training Standard (STS) Tasks:

STS Number	Task Title
28.h.(1)(d)	Determine dose rates
28.h.(1)(e)	Calculate dosages
28.h.(1)(f)	Determine stay times
28.h.(1)(h)	Determine and apply protection factors
28.h.(1)(i)	Monitor personnel
28.h.(3)(c)	Detect and identify chemical agents
28.h.(3)(e)	Predict arrival and duration of chemical hazard
28.h.(3)(i)	Maintain and use the M256 kit
28.h.(3)(j)	Maintain and use the M272 kit
28.h.(3)(k)	Maintain and use M9 tape
28.h.(3)(l)	Maintain and use M8 paper
28.h.(3)(f)	Plot chemical hazard areas
28.h.(3)(n)	Maintain and use the NBC marking kit
28.h.(3)(m)	Maintain and use the ground crew ensemble

BLOCK TITLE Contingency

MODULE TITLE NBC

TASK OBJECTIVE: Determine radiation dose rates

CONDITIONS: Given a scenario involving the detonation of a nuclear weapon, an ADM-300A, AN/PDR-43 radiac set, logarithmic fallout plot, and/or fallout decay nomogram.

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
28.h.(1)(d)	Determine dose rates	b	
	1. Determine dose rate using the ADM-300A*		Y
	1.1 Turn the meter on and wait until the unit		
	completes the self-test		
	1.2 Identify and record the dose rate		
	2. Determine dose rate using the AN/PDR-43 radiac		***
	set*		Y
	2.1 Turn the meter on and check the batteries		
	2.2 Place the selector knob on "GAMMA"2.3 Verify that the selector switch is on the		
	range which indicates at least 10% of a		
	full scale reading during use		
	2.4 Identify and record the dose rate		
	3. Estimate future dose rates using the fallout decay		
	formula		
	3.1 Determine the current dose rate (I_1) in		
	roentgens per hour (R/hr), and the		
	current number of hours after the burst (t ₁)		
	3.2 Select the number of hours after the burst		
	(t ₂) for which you want to predict the		
	dose rate		
	3.3 Determine the future dose rate (I_2) using		
	the following formula:		
	$I_2 = [I_1 \times (t_2)^{-1.2}] / (t_1)^{-1.2}$		
	4. Estimate the future dose rate using a logarithmic		
	fallout plot 5. Estimate the future does rate using a follout		
	5. Estimate the future dose rate using a fallout decay nomogram and straight edge		
	uccay nomogram and straight edge		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol. 5, Sect. 806
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: ADM 300A, AN/PDR-43, logarithmic fallout plot, fallout decay nomogram.
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Conduct hands-on training and evaluation using scenarios.
TRAINER REFERENCES:
ADM-300A Operator's Instructions TO 11H4-7-3-131 AFI 41-106
NOTES:

BLOCK TITLE Contingency

MODULE TITLE NBC

TASK OBJECTIVE: Calculate radiation dosages

CONDITIONS: Given a scenario involving the detonation of a nuclear weapon, dose rates, and/or a fallout dose nomogram

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
28.h.(1)(e)	Calculate dosages	b	
	1. Calculate dosage based on dose rate within 12 hours		
	of detonation*		Y
	1.1 Determine dose rate in roentgens/hr at the		
	beginning and end of exposure (I ₁		
	and I_2), for exposures up to one hour		
	1.2 Determine time of exposure (t) in hours		
	1.3 Calculate the dosage (D) in rads using the		
	following formula: $D=[(I_1+I_2) \times t]/2$		
	1.4 Calculate the dosage for exposures over one		
	hour by calculating the dose for		
	each one hour period, then adding the		
	results		
	2. Calculate dosage based on dose rate more than 12		
	hours after detonation*		Y
	2.1 Determine dose rate in R/hr at the		
	beginning and end of exposure (I_1 and I_2),		
	where the time from I_1 to I_2 does not		
	exceed $1/2$ the time from detonation to I_1		
	2.2 Determine time of exposure (t) in hours		
	2.3 Calculate the dosage (D) in rads using the		
	following formula: $D=[(I_1+I_2) \times t]/2$		
	3. Estimate dose using a dose rates and a fallout dose		
	nomogram*		Y
	4. Determine reporting requirements		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol. 5, Sect. 806
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Fallout dose nomogram
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Conduct training and evaluation using scenarios
TRAINER REFERENCES:
DPTP D-3 AFI 41-106
NOTES:

BLOCK TITLE Contingency

MODULE TITLE NBC

TASK OBJECTIVE: Determine the maximum allowable stay time within a fallout area

CONDITIONS: Given a scenario involving the detonation of a nuclear weapon, dose rates, and/or a fallout dose nomogram

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
28.h.(1)(f)	Determine stay times	b	
	 Determine the maximum allowed dose Determine mission requirements Determine previous personnel exposures Present information to commander and receive guidance Estimate the average dose rate by dividing the dose rate at time of entry by 2 Calculate stay time by dividing the maximum allowed dose by the average dose rate* Estimate the stay time using the maximum allowed dose and a fallout dose nomogram* 		Y Y

LOCAL REQUIREMENTS:

PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol. 5, Sect. 806
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Fallout dose nomogram
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Conduct training and evaluation using scenarios
TRAINER REFERENCES:
DPTP D-3 AFI 41-106
NOTES:

BLOCK TITLE Contingency

MODULE TITLE NBC

TASK OBJECTIVE: Determine and apply fallout protection factors

CONDITIONS: Given a scenario involving the detonation of a nuclear weapon, and dose rate monitoring results

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to determine step-by-step procedures for doing the task. (Proficiency level "b")

			1
STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
28.h(1)(h)	b		
	1. Explain the use of time and distance as protection		
	factors		
	2. Discuss the relationship of time and distance to		
	dosage		
	3. Identify shielding materials for different types of		
	radiation		
	 4. Identify the protection factor inside a shelter or building using the tables listed in DPTP D-3* 5. Determine the protection factor inside a shelter or building using dose rate monitoring results* 		
			Y
			Y
	5.1 Identify sources of radiation inside a		
	shelter or building		
5.2 Determine the inside and outside dos			
	within 3 minutes of each other		
	5.3 Calculate the protection factor by dividing		
	the outside dose rate by the inside dose		
	rate		
	6. Understand the terms half-value and tenth-value		

LOCAL REQUIREMENTS:

PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol. 5, Sect. 807
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: DPTP D-3
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Conduct training and evaluation using scenarios
TRAINER REFERENCES:
DPTP D-3 AFI 41-106
NOTES:

BLOCK TITLE Contingency

MODULE TITLE NBC

TASK OBJECTIVE: Monitor personnel radiation exposure levels

CONDITIONS: Given a scenario involving the detonation of a nuclear weapon, dose and dose rate monitoring equipment

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
28.h.(1)(i)	Monitor personnel	b	
	1. Differentiate between periodic and continuous		
	monitoring requirements		
	2. Determine dosage using IM-93/IM-147		
	dosimeters*		Y
	2.1 Select personnel to wear dosimeters		
	2.2 Collect readings		
	2.3 Add readings		
	2.4 Average readings		
	2.5 Round up to nearest whole number		
	3. Calculate dose using dose rate		
	4. Record and monitor personnel exposure inside		
	shelters using dosimeters and radiation exposure		
	history forms*		Y
	4.1 Monitor and record exposures for personnel		
	who remain inside the shelter once per hour using		
	dosimeters located inside shelter		
	4.2 Monitor and record mixed indoor and		
	outdoor exposures during each departure		
	and return		

* Inese	mandatory	sub-tasks	must be	completed if	i oraer to	receive a	(10)	' for this task
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LOCAL REQUIREMENT	S:		

PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol. 5, Sect 807
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: IM 93/IM 147 dosimeter, radiation exposure history forms
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Conduct training and evaluation using scenarios
TRAINER REFERENCES:
DPTP D-3 AFI 41-106
NOTES:

BLOCK TITLE Contingency

MODULE TITLE NBC

TASK OBJECTIVE: Detect and identify chemical warfare agents

CONDITIONS: Given a scenario involving a chemical agent attack, chemical contamination signs/markers, M8 paper, M9 tape, M256 kit, and M272 kit

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to why and when the task must be done and why each step is needed. (Proficiency level "c")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
SISIASK #	S1S TASK/SOD-TASK TITEL	CODE	SUB-TASK
201 (2)()	B 1:1 .:0 1		SUD-TASK
28.h.(3)(c)	Detect and identify chemical agents	С	
	1. Explain the purpose of chemical agent		
	identification		
	2. Recognize and react to physical signs of chemical		
	agent dissemination, including dead animals,		
	crashed airplanes and vehicles, lack of insects,		
	unusual vapors or mists, unusual/oily spots or		
	puddles, and unusual odors (cut grass or almonds)		
	3. Recognize and react to US and foreign chemical		
	contamination signs/markers		
	4. Recognize and react to physical/ medical effects of		
	a chemical attack on exposed personnel		
	5. Predict arrival and duration of a chemical hazard		
	using a chemical downwind message		
	6. Detect and identify chemical agents using M8		
	paper*		
	7. Detect chemical agents using M9 tape*		Y
	8. Differentiate between situations requiring the use		Y
	of M8 and M9 paper*		
	9. Detect and identify chemical agents using the		Y
	M256 kit*		
	10. Detect and identify chemical agents using the		Y
	M272 kit*		
	11. Select the appropriate detection and		Y
	identification method based on mission		_
	requirements and available resources*		
	Toganomonia una avanació resources		Y
	1	1	-

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol. 5, Sect. 814
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: M8 paper, M9 tape, M256 kit, M272 kit, NBC marking kit, protective mask and gloves
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Conduct hands-on training and evaluation using scenarios. Ensure personnel using M256 kit wear protective mask and gloves.
TRAINER REFERENCES:
AFP 161-3 AFI 41-106 AFM 355-7
NOTES:

BLOCK TITLE Contingency

MODULE TITLE NBC

TASK OBJECTIVE: Predict the arrival and duration of a chemical hazard

CONDITIONS: Given a scenario involving a chemical agent attack

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
29 h (2)(a)	Predict arrival and duration of chemical hazard		SUD-TASK
28.h.(3)(e)		b	V
	1. Interpret and plot NBC-3 reports*		Y
	1.1 Identify strike serial number using line A		
	1.2 Identify date-time group for start of attack		
	using line D		
	1.3 Plot center of area attacked using line F		
	1.4 Identify type of agent using line H		
	1.5 Plot coordinates of predicted hazard area		
	using line PA		
	1.6 Identify duration of hazard using line PB		
	1.7 Identify downwind direction of hazard and		
	windspeed using line Y		
	1.8 Identify significant weather phenomenon		
	using line ZA		
	2. Calculate earliest time of arrival using a CDM and		
	an NBC-2 or NBC-3 report*		Y
	2.1 Locate center of attack using line F of an		
	NBC-2 or NBC-3 report		
	2.2 Determine distance from center of attack		
	2.3 Determine windspeed in kph using the 4th,		
	5th and 6th digits from a CDM		
	2.4 Divide distance from center of attack by		
	•		
	twice the windspeed		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: N/A
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: NBC-2, 3, and CDM report formats
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Conduct training and evaluation using scenarios
TRAINER REFERENCES:
AFM 355-7
AFI 41-106
NOTES:

BLOCK TITLE Contingency

MODULE TITLE NBC

TASK OBJECTIVE: Maintain and use the M256 kit

CONDITIONS: Given a scenario involving a chemical agent attack, and an M256 kit

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
28.h.(3)(i)	Maintain and use the M256 kit	b	
	1. Describe the capabilities and limitations of the	-	
	M256 kit		
	2. Perform preventive maintenance on the M256 kit*		Y
	2.1 Inspect shoulder straps		
	2.2 Verify presence of M8 paper		
	2.3 Inspect discard date for sampler-detector		
	2.4 Discard torn or damaged sampler-detector		
	3. Detect and identify chemical agents using the M256		
	kit*		Y
	3.1 Remove kit from package		
	3.2 Identify and make accessible the two heater		
	pads		
	3.3 Verify the protective strip still covers test		
	spots		
	3.4 Ensure ampoules 3, 4, and 5 contain liquid		
	3.5 Pull off tab 1		
	3.6 Rub top half of tab 2 on tablet		
	3.7 Hold sampler with arrow up and crush the		
	three center ampoules		
	3.8 Rotate sampler until arrow faces down		
	3.9 Force liquid from ampoules to each spot		
	while pressing protective strip to ensure		
	wetting of spots		
	3.10 Swing first heater ampoule away from blister		
	spot and crush, then return over spot		
	3.11 Wait two minutes, then swing heater and		
	protective strip away from spots		
	3.12 Expose spots to air for ten minutes		

28.h.(3)(i) Maintain and use the M256 kit 3.13 Crush second green ampoule and swing heater over test spot for one minute, then remove 3.14 Hold sampler with arrow down and crush two # 5 outside ampoules with heater pads 3.15 Re-rub bottom half of tab 2 until a mark is visible 3.16 Compare test spots and rub area to chart on back of sampler 3.17 Determine type of agent using color code	STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
heater over test spot for one minute, then remove 3.14 Hold sampler with arrow down and crush two # 5 outside ampoules with heater pads 3.15 Re-rub bottom half of tab 2 until a mark is visible 3.16 Compare test spots and rub area to chart on back of sampler 3.17 Determine type of agent using color code	28.h.(3)(i)	Maintain and use the M256 kit	b	
chart on back of kit 4. Verify results with second M256 kit 5. Report results of M256 kit monitoring	20.11.(3)(1)	3.13 Crush second green ampoule and swing heater over test spot for one minute, then remove 3.14 Hold sampler with arrow down and crush two # 5 outside ampoules with heater pads 3.15 Re-rub bottom half of tab 2 until a mark is visible 3.16 Compare test spots and rub area to chart on back of sampler 3.17 Determine type of agent using color code chart on back of kit 4. Verify results with second M256 kit		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:		

PREREQUISITES: NONE

CDC REFERENCE: 90750 Vol. 5, Sect. 814

QTP REFERENCE: TBD

TRAINING AND EVALUATION TECHNIQUES:

EQUIPMENT: M256 kit, protective mask and gloves

ADDITIONAL SUPPORTING MATERIALS: NONE

SPECIFIC TECHNIQUES: Conduct hands-on training and evaluation using scenarios. Ensure personnel using M256 kit wear protective mask and gloves.

TRAINER REFERENCES:	
TO 11H2-21-1	
NOTES:	

BLOCK TITLE Contingency

MODULE TITLE NBC

TASK OBJECTIVE: Maintain and use the M272 kit

CONDITIONS: Given a scenario involving chemical agent attack, a potentially contaminated drinking water sample, and an M272 kit

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
			SUB-TASK
28.h.(3)(j)	Maintain and use the M272 kit		
	1. Describe the capabilities and limitations of the		
	M272 kit		
	2. Identify M272 storage and handling requirements*		
	3. Conduct lewisite test using the M272 kit*		Y
	3.1 Break off both ends of blue band tube and		Y
	insert prongs into connector on stopper		
	3.2 Fill bottle to mark with water sample		
	3.3 Add zinc mix to water and insert stopper		
	assembly firmly into bottle		
	3.4 Determine if a hazard exists by comparing		
	color of beads with lewisite test colors on		
	instruction sheet		
	4. Conduct nerve agent test using the M272 kit*		
	4.1 Remove silver colored ticket from white		Y
	labeled packet		
	4.2 Fold back loose end of silver cover		
	4.3 Moisten white patch with water to be tested		
	4.4 Fold silver cover back over patch and fold		
	ticket		
	4.5 Insert clip and hold in fist for three minutes		
	4.6 Remove ticket from clip and pull silver		
	cover completely off, exposing second		
	patch		
	4.7 Re-wet white patch		
	4.8 Fold ticket and press two white patches		
	together, reinsert in clip and hold in first		
	for three minutes		
	4.9 Determine if a hazard exists by comparing		

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY
			SUB-TASK
28.h.(3)(j)	Maintain and use the M272 kit	b	
	colors of patches to nerve agent test		
	colors		
	5. Conduct cyanide and mustard test using the M272		
	kit*		
	5.1 Break off both ends of blue band tube and		Y
	insert tube prongs into connector on		
	stopper		
	5.2 Break off both ends of red band tube and		
	attach tube prongs up to blue tube with		
	connector		
	5.3 Fill bottle to mark with water sample		
	5.4 Add salt mix from yellow label packet and		
	swirl bottle to dissolve		
	5.5 Add two tablets from green label packet and		
	insert stopper assembly firmly into		
	bottle		
	5.6 Wait five minutes		
	5.7 Identify the presence of cyanide by		
	removing red band tube and comparing		
	color of beads below black portion with		
	cyanide test colors		
	5.8 Remove blue band and insert into tube		
	holder of heater		
	5.9 Insert heater into socket inside case top		
	5.10 Heat tube with a match and wait 30		
	seconds after heating		
	5.11 Remove blue band tube from tube holder and		
	squeeze 1/4 inch of alkaline solution		
	into tube		
	5.12 Identify the presence of mustard agents by		
	comparing color of beads with test		
	colors in instructions		
	6. Report results of M272 kit monitoring		

LOCAL REQUIREMENTS:

PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol. 5, Sect. 814
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: M272 kit
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Conduct hands-on training and evaluation using a simulated contaminated water sample
TRAINER REFERENCES:
TM 3-6665-319-10 (US Army)
NOTES:

BLOCK TITLE Contingency

MODULE TITLE NBC

TASK OBJECTIVE: Maintain and use M9 tape

CONDITIONS: Given a scenario involving a chemical agent attack, and M9 tape

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to name parts, tools, and simple facts about the task. (Proficiency level "a")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
28.h.(3)(k)	Maintain and use M9 tape	a	
	 Identify situations requiring use of M9 tape Describe M9 tape chemical agent detection capabilities and limitations Store M9 tape in a dry location with the package sealed* Use M9 tape correctly by placing it around a wrist, upper arm and ankle, according to local SOPs* Report results of M9 tape monitoring 		Y Y

L	OCAL REQ	UIREMEN	TTS:		

PREREQUISITES: NONE

BLOCK TITLE Contingency

MODULE TITLE NBC

TASK OBJECTIVE: Maintain and use M8 paper.

CONDITIONS: Given a scenario involving a chemical agent attack, and M8 paper.

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to name parts, tools, and simple facts about the task. (Proficiency level "a")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF.	MANDATORY
		CODE	SUB-TASK
28.h.(3)(1)	Maintain and use M8 paper	a	
	1. Identify situations requiring use of M8 paper		
	2. Understand M8 paper chemical detection and		
	identification capabilities and limitations		
	3. Store M8 paper in a dry location with the package		
	sealed*		Y
	4. Use M8 paper*		Y
	4.1 Dip one end of a piece of M8 paper into a		
	suspected source of liquid contamination		
	4.2Compare the paper to the color chart on		
	inside front cover of booklet to identify the		
	type of chemical agent		
	5. Report results of M8 paper monitoring		

LOCAL REQUIREMENTS:

PREREQUISITES: NONE				
CDC REFERENCE: 90750 Vol. 5, Sect. 814				
QTP REFERENCE: TBD				
TRAINING AND EVALUATION TECHNIQUES:				
EQUIPMENT: M8 paper				
ADDITIONAL SUPPORTING MATERIALS: NONE				
SPECIFIC TECHNIQUES: Conduct hands-on training and evaluation using scenarios.				
TRAINER REFERENCES:				
TO 11H2-14-5-1 AFMAN 32-4006; A2				
NOTES:				

BLOCK TITLE Contingency

MODULE TITLE NBC

TASK OBJECTIVE: Identify methods used to plot chemical hazard areas

CONDITIONS: Given a scenario involving a chemical agent attack

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to name parts, tools, and simple facts about the task. (Proficiency level "a")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
28.h.(3)(f)	Plot chemical hazard areas	a	
	Understand the functions and components of the SRC/NBC Cell Identify information from the SRC/NBC Cell that is used to plot chemical hazard areas* Understand the uses of the NBC-3 report Understand the uses of the ATP 45 Plot Method Identify reporting methods used to notify other installations		Y

LC	CAL REQUIREMENTS:	

PREREQUISITES: NONE
CDC REFERENCE: N/A
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: NONE
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Conduct training and evaluation using scenarios
TRAINER REFERENCES:
AFM 355-7 AFI 41-106
NOTES:

BLOCK TITLE Contingency

MODULE TITLE NBC

TASK OBJECTIVE: Maintain and use the NBC marking kit

CONDITIONS: Given a scenario involving a chemical agent attack, and an NBC marking kit

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
28.h.(3)(n)	Maintain and use the NBC marking kit	b	
	 Determine the category of hazard Determine the specific type of hazard Identify the boundaries of contamination Place the appropriate type of marker along the 		
	perimeter of the contaminated area* 5. Write the Date-Time Group and type of contamination on the markers*		Y Y

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:

PREREQUISITES: NONE			
CDC REFERENCE: N/A			
QTP REFERENCE: TBD			
TRAINING AND EVALUATION TECHNIQUES:			
EQUIPMENT: NBC marking kit			
ADDITIONAL SUPPORTING MATERIALS: Simulated contamination area			
SPECIFIC TECHNIQUES: Conduct hands-on training and evaluation using scenarios			
TRAINER REFERENCES:			
TO 11H2-1-101 AFI 41-106			
NOTES:			

BLOCK TITLE Contingency

MODULE TITLE NBC

TASK OBJECTIVE: Maintain and use the ground crew ensemble

CONDITIONS: Given a scenario involving a chemical agent attack, and a ground crew ensemble

STANDARDS: The student must receive a "GO" for 70% of all sub-tasks, and a "GO" on all mandatory sub-tasks. The student will be able to identify why and when the task must be done and why each step is needed. (Proficiency level "c")

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
28.h.(3)(m)	Maintain and use the ground crew ensemble	С	
28.h.(3)(m)	 Maintain and use the ground crew ensemble Identify the hazards and limitations associated with wearing the ground crew ensemble List the components of the ground crew ensemble, including the protective mask, overgarment, protective gloves and inserts, and footwear Describe MOPP levels 0-4 Inspect the ground crew ensemble* Check the manufacture date of the Chemical Protective Overgarment (CPO) to ensure it is not more than 13 years old Check the manufacture date of the Battle Dress Overgarment (BDO) to ensure it is not more than 12 years old Inspect all factory bags for rips or tears, if torn tape the hole-do not dispose Inspect the pants and jacket for water damage, holes or tears, and cleanliness-clean or dispose as necessary Inspect fasteners for serviceability-dispose as necessary Inspect gloves and footwear for dry rot, holes, brittleness, or tears-dispose of as necessary Don and clear the protective mask within 9 seconds (hood must be properly attached within 15 seconds)* Stop breathing and close eyes Remove headgear and spectacles Open carrier and don the mask 	c	Y
	5.4 Clear the mask		

STS TASK #	STS TASK/SUB-TASK TITLE	PROF. CODE	MANDATORY SUB-TASK
28.h.(3)(m)	Maintain and use the ground crew ensemble	С	
	5.5 Seal the mask		
	5.6 Open eyes and begin breathing normally		
	5.7 Pull the hood over head and into position		
	5.8 Zipper and secure the hood		
	6. Don the chemical protective overgarment*		
	6.1 Don the pants, being careful not to tear		Y
	inner lining		
	6.2 Ensure both snaps on the pants are secure		
	after zipping the fly		
	6.3 Don overboots, ensuring the pants are		
	secured and bloused over the top		
	6.4 Don the gloves		
	6.5 Don the jacket, ensuring that the snaps on the		
	back fasten to the pants		
	6.6 Ensure all drawstrings are tied		
	7. Conduct decontamination procedures as required		
	8. Conduct unmasking procedures with the M256 kit		
	8.1 Obtain a negative reading for chemical		
	agents using the M256 kit		
	8.2 Select two personnel to unmask for 5		
	minutes, then reseal and clear their masks		
	8.3 Observe personnel for 10 minutes		
	8.4 Sound all clear if no symptoms appear		
	9. Conduct unmasking procedures without the M256		
	kit		
	9.1 Obtain a negative reading for chemical		
	agents using M8 paper		
	9.2 Obtain a negative reading for chemical		
	agents using M9 paper		
	9.3 Select two personnel to break mask seal and		
	hold breath for 15 seconds with eyes open		
	9.4 Instruct personnel to reseal and clear masks		
	9.5 Observe personnel for 10 minutes for		
	adverse symptoms		
	9.6 Instruct personnel to break mask seal, take two		
	breaths, then reseal and clear masks		
	9.7 Observe personnel for 10 minutes		
	9.8 If no adverse symptoms appear, instruct		
	personnel to unmask for 5 minutes, then		
	seal and clear masks		
	9.9 Observe personnel for 10 minutes		
	9.10 Sound all clear if no symptoms appear		

^{*} These mandatory sub-tasks must be completed in order to receive a "GO" for this task

LOCAL REQUIREMENTS:
PREREQUISITES: NONE
CDC REFERENCE: 90750 Vol. 5, Sect. 813
QTP REFERENCE: TBD
TRAINING AND EVALUATION TECHNIQUES:
EQUIPMENT: Ground crew ensemble, M256 kit
ADDITIONAL SUPPORTING MATERIALS: NONE
SPECIFIC TECHNIQUES: Conduct hands-on training and evaluation using scenarios. Ensure personnel using the M256 kit wear protective mask and gloves.
TRAINER REFERENCES:
TO 14P3-1-141
TO 14P4-15-1 AFMAN 32-4006; A1
AFI 32-4001; 3.2.1., Table 3.1
NOTES:

NAME:	GRADE:	UNIT:	

BLOCK / MODULE #	TASK#	MODULE/TASK TITLE	INITIAL SCORE (GO/NOGO)	REMARKS/ REMEDIAL ACTIONS	RETEST SCORE (GO/NOGO)	TRAINEE INITIALS/ DATE	CERTIFIER INITIALS/ DATE
		Drinking Water Surveillance Module					
EQ1	1	Perform chlorine analysis					
EQ1	2	Perform pH determination					
EQ1	3	Interpret results of field tests					
EQ1	4	Determine frequency and number of samples					
EQ1	5	Identify sampling locations					
EQ1	6	Select and prepare sampling containers					
EQ1	7	Collect potable water samples for bacteriological analysis					
EQ1	8	Transport or ship bacteriological samples to laboratory					
EQ1	9	Membrane filter technique					

NAME:	GRADE:	UNIT:	

BLOCK / MODULE #	TASK#	MODULE/TASK TITLE	INITIAL SCORE (GO/NOGO)	REMARKS/ REMEDIAL ACTIONS	RETEST SCORE (GO/NOGO)	TRAINEE INITIALS/ DATE	CERTIFIER INITIALS/ DATE
EQ1	10	MMO-MUG					
EQ1	11	Interpret bacteriological analysis results					
EQ1	12	Document results					
EQ1	13	Collect and preserve water samples for analysis					
EQ1	14	Transport or ship drinking water samples					
EQ1	15	Interpret results of chemical, physical, and radiological water analysis					
EQ1	16	Document results of chemical, physical, and radiological water analysis					
		Wastewater Surveillance Module					
EQ2	1	Review waste disposal procedures in industrial case file					
EQ2	2	Determine sampling methodology					

NAME:	GRADE:	UNIT:	

BLOCK / MODULE #	TASK#	MODULE/TASK TITLE	INITIAL SCORE (GO/NOGO)	REMARKS/ REMEDIAL ACTIONS	RETEST SCORE (GO/NOGO)	TRAINEE INITIALS/ DATE	CERTIFIER INITIALS/ DATE
EQ2	3	Identify locations and determine frequency					
EQ2	4	Select and prepare sample containers					
EQ2	5	Interpret results of sampling					
		Hazardous Waste Surveillance Module					
EQ3	1	Compile and maintain hazardous waste characterization and waste stream inventory					
EQ3	2	Review workplace and industrial processes and practices					
EQ3	3	Review disposal procedures					
EQ3	4	Perform bulk sample collection					
EQ3	5	Interpret results of hazardous waste sampling					
		Regulatory Research Module					

NAME:		GRADE:	UNIT:
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BLOCK / MODULE #	TASK#	MODULE/TASK TITLE	INITIAL SCORE (GO/NOGO)	REMARKS/ REMEDIAL ACTIONS	RETEST SCORE (GO/NOGO)	TRAINEE INITIALS/ DATE	CERTIFIER INITIALS/ DATE
IH1	1	Identify appropriate CFR used for identification, recognition, and control of specific health hazards					
IH1	2	Identify appropriate AFOSH STD used for identification, recognition, and control of specific health hazards Conducting Technical Training					
		Module					
IH2	1	Conduct specialized training on occupational and environmental hazards					
IH2	2	Conduct in-service or other training					
		Workplace Surveillance Module					
IH3	1	Survey scope					
IH3	2	Survey frequency					
IH3	3	Interview shop personnel					
IH3	4	Task/process description					

NAME:	GRADE:	UNIT:	

BLOCK / MODULE #	TASK#	MODULE/TASK TITLE	INITIAL SCORE (GO/NOGO)	REMARKS/ REMEDIAL ACTIONS	RETEST SCORE (GO/NOGO)	TRAINEE INITIALS/ DATE	CERTIFIER INITIALS/ DATE
IH3	5	Document workplace surveys or visits					
		Hazardous Materials Management Module					
IH4	1	Research MSDS					
IH4	2	Review Hazardous Material reports					
		Biohazards Module					
IH5	1	Evaluate biological exposure					
IH5	2	Work practices					
IH5	3	Enclosures					
IH5	4	Select proper PPE					
		Noise Module					

NAME:	GRADE:	UNIT:	

BLOCK / MODULE #	TASK#	MODULE/TASK TITLE	INITIAL SCORE (GO/NOGO)	REMARKS/ REMEDIAL ACTIONS	RETEST SCORE (GO/NOGO)	TRAINEE INITIALS/ DATE	CERTIFIER INITIALS/ DATE
IH6	1	Calibrate sound level meters					
IH6	2	Perform a sound level survey					
IH6	3	Calibrate and use dosimeter					
IH6	4	Calculate PEL for noise					
IH6	5	Calculate C ₁ /T ₁ and predict worker exposure					
IH6	6	Determine attenuation factors/noise reduction rating factors					
IH6	7	Select and inspect proper protectors					
		Thermal Stress Module					
IH7	1	Perform wet bulb globe thermometer (WBGT) survey					
IH7	2	Calculate TWA WBGT					

NAME:		GRADE:	UNIT:
	l		

BLOCK / MODULE #	TASK #	MODULE/TASK TITLE	INITIAL SCORE (GO/NOGO)	REMARKS/ REMEDIAL ACTIONS	RETEST SCORE (GO/NOGO)	TRAINEE INITIALS/ DATE	CERTIFIER INITIALS/ DATE
IH7	3	Perform other temperature and humidity surveys					
		lonizing Radiation Module					
IH8	1	Survey radioactive material use and/or storage areas					
IH8	2	Investigate abnormal exposures, overexposures, or other incidents involving ionizing radiation					
IH8	3	Enroll personnel on TLD program					
IH8	4	Issue, collect, or exchange TLDs					
IH8	5	Ship or store TLDs					
		Radiofrequency Radiation Module					
IH9	1	Inventory sources					

NAME:	GRADE:	UNIT:	

BLOCK / MODULE #	TASK#	MODULE/TASK TITLE	INITIAL SCORE (GO/NOGO)	REMARKS/ REMEDIAL ACTIONS	RETEST SCORE (GO/NOGO)	TRAINEE INITIALS/ DATE	CERTIFIER INITIALS/ DATE
IH9	2	Perform site presurveys					
IH9	3	Calculate hazard distances					
IH9	4	Select proper measurement equipment					
IH9	5	Calculate probe burnout					
IH9	6	Ground based emitters					
IH9	7	Airborne Radiofrequency (RF) emitters					
IH9	8	Interview personnel					
IH9	9	Calculate exposure times					
IH9	10	Calculate compliance factors					
IH9	11	Reconstruct incident					

NAME:	GRADE:	UNIT:	

BLOCK / MODULE #	TASK#	MODULE/TASK TITLE	INITIAL SCORE (GO/NOGO)	REMARKS/ REMEDIAL ACTIONS	RETEST SCORE (GO/NOGO)	TRAINEE INITIALS/ DATE	CERTIFIER INITIALS/ DATE
IH9	12	Recommend corrective actions					
IH9	13	Evaluate safe work practices					
		Confined Space Module					
IH10	1	Oxygen deficient/enriched					
IH10	2	Determine LEL					
IH10	3	Determine UEL					
IH10	4	PPE selection					
		Chemical Exposures Surveillance Module					
IH11	1	Evaluate work practices					
IH11	2	Identify chemical composition					

NAME:	GRADE:	UNIT:	

BLOCK / MODULE #	TASK #	MODULE/TASK TITLE	INITIAL SCORE (GO/NOGO)	REMARKS/ REMEDIAL ACTIONS	RETEST SCORE (GO/NOGO)	TRAINEE INITIALS/ DATE	CERTIFIER INITIALS/ DATE
IH11	3	Verify chemical usage					
IH11	4	Determine potential exposure routes					
IH11	5	Estimate potential health risks					
IH11	6	Collect bulk chemical samples					
IH11	7	Calculate 8 hour time weighted average (TWA)					
IH11	8	Interpret 8 hour time weighted exposures					
IH11	9	Interpret short term exposure limit (STEL) values					
IH11	10	Interpret ceiling limits					
		Air Surveillance Module					
IH12	1	Develop a sampling strategy					

NAME:	GRADE:	UNIT:	

BLOCK / MODULE #	TASK#	MODULE/TASK TITLE	INITIAL SCORE (GO/NOGO)	REMARKS/ REMEDIAL ACTIONS	RETEST SCORE (GO/NOGO)	TRAINEE INITIALS/ DATE	CERTIFIER INITIALS/ DATE
IH12	2	Collection method					
IH12	3	Sampling rates/volumes					
IH12	4	Calibrate air sampling pumps					
IH12	5	Collect area air samples					
IH12	6	Collect breathing zone samples					
		Ventilation Module					
IH13	1	Calculate dilution ventilation requirements					
IH13	2	Perform dilution ventilation surveys					
IH13	3	Perform initial, baseline, and routine industrial ventilation surveys using the face velocity method					
IH13	4	Perform routine static pressure check					

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		Control Measures Module					
IH14	1	Evaluate use and availability of emergency equipment					
IH14	2	Initiate and complete AF Form 2758					
		Using Personal Protective Equipment Module					
IH15	1	Advise shop supervisors on ordering respiratory protection devices					
IH15	2	Select appropriate eye protection					
IH15	3	Select appropriate skin protection					
IH15	4	Recommend proper use, care, and maintenance of respirators					
IH15	5	Evaluate adequacy, use, and maintenance of PPE					
		Advanced Topics in Personal Protectiv	ve Equipment I	Module			

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IH16	1	Conduct required initial/periodic training					
IH16	2	Perform selection of respiratory protective devices for personnel					
IH16	3	Qualitative fit test					
		Hazardous Waste Site Operations Module					
C1	1	Hazardous waste site operation					
C1	2	Decontamination at hazardous waste sites					
		Spill Prevention and Response Module					
C2	1	Identify and brief field officials on possible health hazards					
C2	2	Recommend personal protective equipment					
		Potable Water Module					

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C3	1	Monitor chlorine and bacteriological quality					
C3	2	Maintain and use the field bacteriological water test kit					
C3	3	Calculate chlorination requirements					
C3	4	NBC decontamination and treatment techniques					
		NARP Module					
C4	1	Identify possible health hazards					
C4	2	Operationally check, maintain, and use Broken Arrow response equipment other than radiac					
C4	3	Use and maintain radiac equipment					
C4	4	Calculate airborne contamination					
C4	5	Interpret airborne sampling results					

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BLOCK / MODULE #	TASK#	MODULE/TASK TITLE	INITIAL SCORE (GO/NOGO)	REMARKS/ REMEDIAL ACTIONS	RETEST SCORE (GO/NOGO)	TRAINEE INITIALS/ DATE	CERTIFIER INITIALS/ DATE
C4	6	Interpret surface contamination results					
C4	7	Recommend personal protective equipment					
		NBC Module					
C5	1	Determine dose rates					
C5	2	Calculate dosages					
C5	3	Determine stay times					
C5	4	Determine and apply protection factors					
C5	5	Monitor personnel					
C5	6	Detect and identify chemical agents					
C5	7	Predict arrival and duration of chemical hazard					

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C5	8	Maintain and use the M256 kit					
C5	9	Maintain and use the M272 kit					
C5	10	Maintain and use M9 tape					
C5	11	Maintain and use M8 paper					
C5	12	Plot chemical hazard areas					
C5	13	Maintain and use the NBC marking kit					
C5	14	Maintain and use the ground crew ensemble					